Tennessee Health Information Exchange

Operational Plan

Version 2.0

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Introduction

Tennessee continues to advance the adoption and meaningful use of health information technology ("IT") and health information exchange ("HIE") to drive improvements in patient healthcare outcomes. It is anticipated that these advancements will not only enable vital, secure, decision-ready information to be available to clinicians at the point of care, but will also empower patients by making critical health information available to them. Health IT and HIE is necessary to build Tennessee's health care delivery foundation to improve both individual and population health. In response to the desire to coordinate resources, be inclusive, and account for both public and private needs, the Tennessee State government and key stakeholders represented through the Health Information Partnership for Tennessee ("HIP TN") are working to create the technical, legal, and business rules that will govern HIE in Tennessee.

Tennessee's strategy to establish statewide HIE utilizes a statewide collaborative process convened by HIP TN to build consensus around policies and cost-effective approaches that have wide support among stakeholders and can meet the following objectives:

- Foster the development of standards-based HIE technology that is vendor-agnostic and adaptable;
- Develop privacy and security policies that engender trust on the part of patients, providers, payers and other data users and data services; and
- Evolve concepts for financial sustainability of HIE in Tennessee that may include legislative and/or regulatory proposals.

With the federal government's release of proposed regulations, standards and certification criteria for the "meaningful use" of certified electronic health record ("EHR") technologies, it is imperative that the State's HIE Strategic Plan reflect these criteria. In conjunction with the revision of the Strategic Plan, the State and HIP TN began development of the State of Tennessee's HIE Operational Plan ("Operational Plan"), reflecting existing programs and future requirements for HIE.

Governance

In order to achieve public policy goals and promote durable decisions, equity and fairness, Tennessee's HIE governance structure consists of two entities balancing public and private interests: the State government and HIP TN. The role of State government includes the policies, perspectives, and priorities represented by the Office of e-Health Initiatives ("OeHI"), the Internal Health Council, the State Health Plan, TennCare and the State Department of Health.

HIP TN holds the vision of being a recognized state and national leader that supports measurable improvement in clinical quality and efficiency to healthcare consumers, providers, and payers through the provision of secure HIE services. The HIP TN mission, as a Tennessee not-for-profit organization, is to work to improve access to health information through a statewide collaborative process by providing services and infrastructure for the secure electronic exchange and use of health information.

The operating procedures and workplan of HIP TN ensure coordination with and involvement of key stakeholders through the formation and engagement of the Clinical, Privacy and Security, Sustainability and Technology Workgroups. With the advent of American Recovery and Reinvestment Act of 2009 ("ARRA"), HIP TN recognizes the need to remain abreast of new developments and opportunities for collaboration by coordinating with HITECH and other efforts, aligning with the Tennessee Regional Extension Center ("tnREC"), regional health information exchange initiatives, broadband and telemedicine efforts, workforce development and training programs, and data exchange with bordering states.

Clinical Objectives and Priorities

To ensure that the statewide health IT adoption and HIE efforts align with and advance clinical priorities, HIP TN created a Clinical Workgroup to identify and prioritize use cases. The Clinical Workgroup recommended three initial use cases to guide development of statewide HIE: (1) Diagnostic Results Reporting, (2) Medication Management, and (3) Transitions in Care. The information prioritized by the Clinical Workgroup was cross referenced with the federal government's proposed objectives and criteria for the meaningful use of EHR technologies with the State's intent to align clinical priorities and implementation across the proposed stages of meaningful use.

Widespread Availability of Health Information Exchange Services

In Tennessee, a number of providers have direct access to a range of HIE services through regional health information organizations ("HIOs"). Currently, three HIOs, CareSpark, MidSouth eHealth Alliance, and West Tennessee Healthcare, are operational and three others are in advanced planning stages. Despite the continued growth of HIOs, a significant number of providers currently do not have readily available access to HIE services through HIOs or other means. To ensure that HIE services are broadly and cost-effectively available statewide, the HIP TN Board is assessing requirements for organizations to become qualified to connect to the statewide HIE.

Technical Infrastructure

Tennessee's statewide HIE framework consists of three categories of services:

- *Core Services*: Services to help organizations locate, positively identify, and determine how to exchange information securely across organizational boundaries;
- *Enterprise Services*: Services to help organizations meet the federal criteria and state requirements for the meaningful use of certified EHR technologies; and
- *Value-Added Services*: Services for inclusion within the statewide HIE framework based on the feasibility, cost, and value of the proposed service. It is anticipated that services will evolve and be accessed through HIP TN's provision of Core Services.

HIP TN intends to store as little data as possible except to the extent necessary for the transport of information. HIP TN will accomplish this as the "hub of hubs" that provides service to support connectivity and data transport. Tennessee's governance model and technical approach are well-positioned to be compatible with the emerging NHIN governance principles and functions. Coordinated through its statewide HIE collaborative process, Tennessee will continue its commitment to using and helping local providers migrate to federally-recognized health IT standards.

HIP TN has set forth an aggressive timeline that includes the release of a request for proposals and the identification of a vendor by the end of the summer 2010 with the implementation of core services to begin immediately after final contract signature.

Business and Technical Operations

Day-to-day operations of statewide HIE in Tennessee will be the responsibility of multiple entities spanning the public and private sectors. The State will manage service providers, vendors, outsourcing, RFPs and contracts in order to fulfill the resource requirements for delivery of Enterprise Services.

HIP TN will manage the statewide HIE infrastructure as a contracted service. In June 2010, HIP TN will release an RFP to select a vendor to provide the Core Services and to provide access to the state-identified Enterprise Services and additional Value-Added Services as described in this Operational Plan. It is expected that the Value-Added Services will be provided by the private sector based upon identified needs in the marketplace. HIP TN's Program Team will develop policies and procedures to define the day-to-day operations as well as compliance with and facilitation of activities.

OeHI will monitor the operation of HIE throughout the state, and any needed remediation will be addressed through contractual performance requirements and service level agreements. In addition, Tennessee and its partners in statewide HIE will remain dedicated to continuous improvement.

Legal and Policy

Tennessee's legal and policy strategy is to utilize the statewide collaborative process administered by HIP TN to establish a common set of policies to enable inter-organizational and eventually interstate HIE while protecting consumer interests. As statewide policy guidance is developed, the criteria for the meaningful use of certified EHR technology will be considered and incorporated.

OeHI is responsible for the standardization of privacy and security rules for HIE and manages this process through a contractual agreement with HIP TN. Under this agreement, HIP TN is responsible for the collaborative development of statewide HIE policies including privacy and security obligations of participants in the network. In addition to the compliance requirements of data participants, HIP TN will maintain a monitoring and auditing oversight role.

Evaluation

Tennessee's evaluation efforts will: identify health IT and HIE efforts and ascertain their value; measure the effects on providers and consumers; determine what is working and what needs to be improved; disseminate lessons learned; and create an iterative feedback loop between planning and assessment that ensures future strategies are refined as needed. Tennessee will track and assess progress by employing a robust evaluation program that is coordinated across the federally-funded efforts including the Tennessee's Regional Extension Center ("tnREC") and TennCare.

Financing

In order to develop a sound financial strategy for statewide HIE, HIP TN created a Sustainability Workgroup chartered to "define and recommend financial and sustainability plans to support HIE activities throughout the state, beyond the initial startup funding." The workgroup membership reflects stakeholder perspectives from employers, payers, providers, state government, tnREC, and regional HIOs. The budget and workplan developed by the Sustainability Workgroup will reflect environmental data; include cost and revenue models; provide issue resolution and risk mitigation strategies; and define controls and reporting functions.

Communication Plan

The statewide HIE communication plan will evolve with the objectives of coordinating communication activities across Tennessee's HIE and health IT programs; defining roles and responsibilities for communicating with various audiences; and identifying the timeline for the phased development of communication messages, channels, and resources. OeHI, HIP TN, tnREC and TennCare have contributed to the development of the communication plan, identifying their respective audiences, assignments and timing of delivery.

1. Introduction

1.1 Evolution of Health Information Exchange Efforts in Tennessee

Tennessee has a rich landscape of statewide assets, regional efforts, and organizational resources to advance health information exchange ("HIE") and accelerate the adoption and effective use of health information technology ("health IT"). In the February, 2004 State of the State Address, Governor Bredesen pledged to build Tennessee's health information infrastructure. With this, the State of Tennessee's portfolio of eHealth initiatives has grown to a solid foundation of governance mechanisms, policies, and technical capabilities. Within Tennessee, the combination of federal, state, and local investments has created an inclusive, transparent, statewide public-private collaborative framework, a network infrastructure of broadband, and regional health information organizations ("HIOs") that have grown organically from community-based efforts to provide HIE services among local stakeholders.

In April 2006, Tennessee began a concerted effort to advance HIE and health IT through a public-private collaborative process, the eHealth Advisory Council.[1] Consisting of public and private sector stakeholders from across the state, the eHealth Advisory Council served as an educational forum and advisory body to the State, with the explicit goal of increasing the adoption of electronic health records ("EHRs") and electronic prescribing ("ePrescribing").

Within state government, the Tennessee Department of Finance and Administration established the Office of e-Health Initiatives ("OeHI") to serve as the focal point for the State's HIE efforts and to ensure eHealth efforts advance in the public interest. OeHI's initial tasks included:

1. Coordination of Tennessee's regional health information organizations ("HIOs");

2. Administration of various grant programs, including the Physician Connectivity Grant program; and

3. Promotion of ePrescribing.

In February 2009, the Health Information Technology for Economic and Clinical Health ("HITECH") Act, a part of the American Recovery and Reinvestment Act ("ARRA"), became law including significant funding for the adoption of EHRs and the creation of networks for HIE. In response to this unprecedented opportunity, the State commissioned a comprehensive study of options for further development of HIE in Tennessee, including an assessment of the HIE environment, a canvass of stakeholders'

[1] State of Tennessee. "Executive Order by the Governor; Number 35." April 6, 2006. http://www.tennesseeanytime.org/ehealth/documents/ExecutiveOrder35_000.pdf.

views, an evaluation of experiences in other states, and an articulation of policy options.[2] A key feature of the study was the recommendation to create a formal governance structure and a process to realize the promise of HIE for improving health outcomes for Tennesseans. In response to this recommendation, healthcare stakeholders formed a new not-for-profit organization, the Health Information Partnership for Tennessee ("HIP TN") to establish technical, legal, and business rules that will govern HIE in Tennessee.

Supported by a transparent, collaborative process that brings together stakeholders from across the State, HIP TN and OeHI continue to work together to guide and coordinate the design and implementation of statewide HIE.

1.2 Development of Tennessee's HIE Strategic and Operational Plans

In August 2009, the Office of the National Coordinator for Health IT ("ONC") created the State HIE Cooperative Agreement Program to help states advance their HIE and health IT efforts. In order to receive funding, the State HIE Cooperative Agreement Program required each state to develop both Strategic and Operational Plans which described the goals, objectives, and detailed strategies for ensuring statewide interoperability.

From August through October 2009, OeHI developed the first version of the State of Tennessee's HIE Strategic Plan ("Strategic Plan"). Approved by the HIP TN Board on October 7, 2009, the Strategic Plan was formally submitted to ONC as part of the State of Tennessee's application for the State HIE Cooperative Agreement Program.

In January 2010, following the federal government's release of proposed regulations for the "meaningful use" of certified EHRs and standards and certification criteria for certified EHR technology, OeHI and HIP TN recognized the need to update Tennessee's HIE Strategic Plan. In March 2010, OeHI shared a revised version of the Strategic Plan with HIP TN, requesting comment. Based on feedback collected by HIP TN, OeHI revised the Strategic Plan and submitted it for public comment on May 17, 2010.

In conjunction with the revision of the Strategic Plan, the State and HIP TN began development of the State of Tennessee's HIE Operational Plan ("Operational Plan") through a combination of weekly calls and in-person meetings from March through May 2010.

At the April 16 HIP TN Summit, additional work on the Operational Plan was done in the presence of more than 100 stakeholders. The Operational Plan was presented to the HIP TN Board on May 20, 2010. In addition to requesting input from stakeholders convened by HIP TN, the State of Tennessee opened a public comment period from May 17 to May 21, 2010 and has incorporated this feedback into the version 2.0 of the plan.

[2] State of Tennessee. "Advancing Statewide eHealth Efforts Version 2.0." June 30, 2009. http://www.tennesseeanytime.org/ehealth/documents/ReporttoAdvanceeHealthinTennessee063009_000.pdf.

1.3 Scope of Tennessee's HIE Operational Plan

The Operational Plan serves as a guide for the effective implementation of HIE and health IT to improve the health status of Tennesseans. Aligned with legislative and executive branch priorities for action in Tennessee, the Operational Plan captures the fundamental aspirations of healthcare providers, payers, purchasers, policy leaders and consumers who are dedicated to the success of the initiative.

The Operational Plan details how the Tennessee HIE Strategic Plan will be executed to enable statewide HIE; outlines specific actions and roles of various stakeholders in the development and implementation of HIE services in addition to high-level timelines and milestones; and defines an approach for continuous improvement and evaluation.

This plan is consistent with the State HIE Cooperative Agreement Funding Opportunity Announcement and addresses all five ONC required HIE domains including:

- Governance,
- Finance,
- Technical Infrastructure,
- Business and Technical Operations, and
- Legal/Policy.

1.4 Mission and Objectives of Statewide Health Information Exchange

Tennessee's mission for HIE is to drive improvements in patient healthcare outcomes through a coordinated statewide HIE effort that enables vital, secure, decision-ready information to be available to clinicians at the point of care, empowers patients by making their own critical health information available to them, and builds a foundation to improve both individual and population health.

Tennessee's strategy to establish statewide HIE utilizes a statewide collaborative process convened by HIP TN to build consensus around policies that have wide support among stakeholders and can meet the following objectives:

- Foster the development of standards-based HIE technology that is vendor-agnostic and adaptable;
- Develop privacy and security policies that engender trust on the part of patients, providers, payers and other data users and data services; and
- Evolve concepts for financial sustainability of HIE in Tennessee that may include legislative and/or regulatory proposals.

1.5 HIE Landscape and Capacity

In Tennessee, the health information infrastructure consists of multiple layers operating as a "system of systems," including:

- HIOs that serve multi-stakeholder entities and enable the movement of health-related data as hubs of natural information markets;
- Health systems, affiliated providers, and ancillary services;
- Specialized participants that operate for specific purposes, including but not limited to laboratory services, radiology, public health, research, and quality assessment;
- Information and service providers that operate in vertical markets such as ePrescribing, State registries, Medicaid and Medicare;
- Organizations that operate Personal Health Records ("PHRs") and support other consumer applications; and
- Private payers and clearinghouses that transmit administrative data for claims purposes and for pay for performance.

Many of these organizations have their own health IT systems and networks. The evolving statewide health information infrastructure is intended to integrate, not supplant, these networks. At any point in time the networks will be in different stages of their life cycles, will be built on many different technologies, and will have differing priorities regarding the data they collect and transmit.

1.5.1 Regional HIE

Tennessee has two well-developed and operational regional initiatives, MidSouth eHealth Alliance and CareSpark.

MidSouth eHealth Alliance has been exchanging clinical data actively since May 2006 and serves member facilities in three counties surrounding Memphis, Tennessee and northwest Mississippi. MidSouth has met significant milestones in point-of-care utilization of health data to improve patient care. Originating in Memphis emergency departments, the system has expanded use to safety net clinics and among hospitalists and is currently extending access to ambulatory providers.

CareSpark serves an area in Appalachia that includes 34 counties spanning northeast Tennessee and southwest Virginia. CareSpark's model is based on significant grassroots support from local healthcare providers, purchasers, technology companies and policymakers at the state and national level. In 2008, CareSpark launched its community health record and is now actively exchanging demographic data and clinical data. In addition, CareSpark currently enables exchange of both the Tennessee and Virginia immunization registries and is in discussions with several other states to enable exchange of this data.

Many regions of the state that lie between the areas served by CareSpark and MidSouth eHealth Alliance are not served by HIOs. Steps are being taken to build HIE capacity in a number of areas, however, including: Middle Tennessee eHealth Connect based in Nashville, Innovation Valley Health Information Network based in Knoxville, Middle Tennessee Rural Health Information Network based in the upper Cumberland region, and West Tennessee Healthcare based in Jackson.

1.5.2 Public Health Reporting and Surveillance

The Tennessee Department of Health ("TDOH") performs public health reporting and surveillance activities in a number of TDOH bureaus and offices as mandated or permitted by law and regulation. The bureaus and offices include: Health Services Administration, Policy Planning and Assessment, and Health Licensure and Regulation. Public health reporting and surveillance data collection is performed, where possible, using standards-based methods, including message and vocabulary electronic messaging and vocabulary standards from the provider communities.

The Bureau of Health Services Administration, Communicable Environmental Disease Services Division, performs data collection of reportable and notifiable diseases which includes: food-borne diseases, hepatitis, meningitis, sexually transmitted diseases, vaccine preventable diseases, vector-borne diseases, tuberculosis and HIV/AIDS. One method by which TDOH receives reports is through electronic laboratory results reporting ("ELR") which is currently being done by Mayo and LabCorp laboratories. Reportable diseases are electronically captured by the TDOH, which notifies the Centers for Disease Control and Prevention ("CDC") using CDC-specified standards (e.g., HL7 2.5 Case Notification Message Mapping Guides).

Syndromic surveillance differs from traditional reportable disease surveillance. Syndromic surveillance is conducted on a local/regional level. Currently, surveillance data collected at the local/regional level are not shared with TDOH. Provider alerting when an increase in a particular syndrome (such as gastrointestinal illness) has been explored in a pilot study at the national level. Bidirectional communication between TDOH and healthcare providers, including alerting, could be accomplished through HIOs in Tennessee.

The Office of Policy Planning and Assessment collects birth and death data from healthcare providers via electronic and paper methods in a standard format and vocabulary. The data are collected and de-identified to produce statistical reports both in a static and dynamic means for public consumption. In addition, the Health Statistics Unit collects multiple data sets electronically, in a standard format, including hospital discharge data. Finally, the Cancer Surveillance Unit collects reportable cancer disease data for statistical analysis and notifies the CDC.

The Bureau of Health License and Regulation, Emergency Medical Services ("EMS") Division collects ambulance emergency run records from licensed EMS providers in Tennessee. These data are used for capacity planning and other purposes by EMS and are summarized for reporting to federal agencies. The data are reported in the industry National Emergency Management System Information System message format and vocabulary standard that is currently seeking recognition as an American National Standards Institute/International Standardization Organization and HL7 standards organizations.

1.5.3 Statewide Registries

In Tennessee, various state-level databases may be made accessible to authorized users through statewide HIE services. TDOH manages a Cancer Registry, Traumatic Brain Injury Registry, Immunization Registry, and Controlled Substance Database.

Tennessee's Immunization Registry allows information to be electronically populated and accessed through three modes:

- ***Patient Tracking and Billing Management Information System ("PTBMIS"):*** The Department of Health's local clinics, which deliver 30 percent of the immunizations in Tennessee, and other public health users connect to the Immunization Registry through the State's public health practice management system, PTBMIS. A central PTBMIS system resides on DOH's AS400 server with local copies of the PTBMIS database/system residing in each of the 13 public health regions. A bi-directional interface keeps information in the local and central systems synchronized.

- ***Electronic Data Interchange ("EDI"):*** Users capable of sending and receiving HL7 messages connect to the Immunization Registry through an EDI with information then integrated and parsed through an EDI engine housed at TDOH. At present, users comprise the three TennCare managed care organizations and CareSpark, however several EHR vendors have expressed interest in facilitating a connection with the Immunization Registry.

- ***Tennessee Web Immunization System ("TWIS"):*** Users not capable of sending and receiving HL7 messages can update and query for information through a web-based portal, TWIS. Currently, 10,000 users (including individual providers, hospitals and pharmacies) in 3,200 provider sites utilize the system. In July 2010, Tennessee will institute a requirement that schools only accept official immunization certificates for school-aged children. These certificates can be obtained through TWIS, which is expected to encourage further utilization of this system.

The TDOH's Immunization Registry is capable of electronically recording, retrieving, and transmitting immunization information in HL7. Currently, this

capability is utilized by a select group of users, however demand is expected to increase as certified EHR technology gains the functionality to electronically record, transmit and receive immunization information to immunization registries in HL7 2.3.1 or HL7 2.5.1 in order to meet the requirements of demonstrating meaningful use. The State intends to add capacity to the EDI engines, also used for electronic laboratory results reporting ("ELR"), and the AS400 server. In the near term, TDOH will continue to manage activities related to the connection of new providers.

1.5.4 Laboratory Services

Laboratory reports are received from the State Public Health Laboratory (the State Lab), commercial laboratories, and healthcare providers. Approximately 200,000 laboratory reports are received electronically in Tennessee per year (including general communicable diseases, sexually transmitted diseases, HIV/AIDS, and blood lead levels). This includes data from two large national laboratories, LabCorp and Mayo. The State Lab will be sending electronic laboratory results reports to TDOH surveillance systems in the immediate future. The number of electronic reports which will be included in this data flow is estimated to be approximately 100,000 additional reports per year. The remaining lab reports come from other providers and are currently submitted in a paper-based format. The majority of lab reporting for communicable diseases outside of the electronic flow come from the 158 separately licensed hospitals throughout Tennessee.

Currently, major lab services providers LabCorp and Mayo send reports in HL7 2.3.1 to the TDOH's EDI engine. Tennessee has efforts underway to increase electronic lab reporting capability. The State public health lab will be able to send information in HL7 2.5.1 during Q2-Q3 2010. TDOH was also awarded funding under the CDC's Epidemiology and Laboratory Capacity ("ELC") Cooperative Agreement which to will facilitate electronic lab reporting for state reportable conditions and hospital acquired infections in 40 hospitals. Finally, TDOH is seeking funding to facilitate electronic lab reporting in 20 additional hospitals and exchange of test orders and results in 14 hospitals.

Both electronic and paper-based information on reportable diseases are electronically captured by DOH and distributed into one of three surveillance systems: National Electronic Diseases Surveillance System Base System ("NBS"), PRISM (for Sexually Transmitted Diseases), and eHARS, the HIV/AIDS system. NBS and the HIV/AIDS system are provided and supported by the CDC, PRISM is used by seven other states. Notifications are sent to the CDC using current CDC-specified standards.

1.5.5 TennCare HIE Efforts

TennCare's Medicaid Management Information System ("MMIS") covers approximately 1.2 million Tennesseans. The current MMIS implementation, a variant of the interChange system developed by EDS, went live in August 2004.

Tennessee's MMIS has been tailored to support Tennessee's managed care model, with heavy emphasis on eligibility and enrollment processing. Unlike most states, Tennessee's MMIS is owned by the State and housed in the State data center.

The State government has contracted with Shared Health, a for-profit venture of Blue Cross Blue Shield, to make Medicaid data available statewide. The Shared Health platform provides a clinical viewer for data, ePrescribing, a clinical decision application offering problem lists and care opportunities, and a clinical analytics application providing condition tracking and cohort analysis at the practice or detail level. The intent over the next year is to use the knowledge gathered to date to pilot the uses of Medicaid claims data and decision support.

1.5.6 Quality Reporting

In 2009, the state produced its first healthcare quality report focusing on hypertension and diabetes. The report aggregated Healthcare Effectiveness Data and Information Set ("HEDIS") measures from four commercial health plan providers along with TennCare data to provide a nearly complete all-payer dataset assessing healthcare quality at the county level.

Medicaid Managed Care Organizations ("MCOs") in Tennessee are required to report a full HEDIS as a part of the state's accreditation mandates. HEDIS standardized measures of MCO performance allow tracking over time, as well as comparisons to national averages/benchmarks and across the state's MCOs. The Consumer Assessment of Healthcare Providers and Systems ("CAHPS") set of standardized surveys is included in HEDIS to measure members' satisfaction with their care. An annual report summarizes the results of each year of HEDIS/CAHPS reporting by the MCOs contracting with TennCare. TennCare uses the information to help assess health plan performance and to reward, via pay-for-performance initiatives, those that are demonstrating significant improvement.

The Department of Commerce and Insurance ("DCI") has the authority to collect all-payer claims data from the health insurance companies and regulate the use of this database. DCI already has relationships with the insurers as well as an established regulatory system.

1.5.7 ePrescribing Activities

Through the Physician Connectivity Grants, OeHI has accelerated the adoption of ePrescribing in Tennessee, approving 1,961 healthcare providers and more than 420 treatment sites. The Grant program required recipients to ePrescribe for two years.

Furthermore, OeHI has trained more than 350 grant recipients statewide on the process of ePrescribing, best practice models, workflow adoption, ePrescribing functionality importance when choosing a vendor, and understanding the

pharmacy workflow process. Acknowledging the importance of independent pharmacy adoption especially in the rural communities, OeHI partnered with Tennessee Pharmacists' Association to offer concurrent independent pharmacy grants and fostered physician to pharmacy communication and collaboration within the communities.

According to data compiled by Surescripts, the percentages of prescriptions routed electronically in Tennessee were 0.45 percent in 2006, 1.14 percent in 2007, and 4.02 percent in 2008.[3] Another measure of the increase in ePrescribing adoption is the percentage of physicians who route their prescriptions electronically. The percentages of Tennessee providers routing ePrescribing at year end were: 1.74 percent in 2006; 6.45 percent in 2007, and 15.76 percent in 2008.[4]

1.5.8 Electronic Eligibility and Claims Transactions

Tennessee's Medicaid Agency, TennCare, supports both electronic eligibility and claims transactions. TennCare has a direct relationship with Emdeon, Passport and other value-added networks that provide access to TennCare eligibility information for subscribed providers. There are 750,000 to 800,000 eligibility transactions per month from these organizations.

The State also provides eligibility inquiry services to CoverKids, Tennessee's Children's Health Insurance Program, for coordination of coverage. The Volunteer State Health Plan estimates that 82 percent of claims are filed electronically. In addition, Tennessee receives Medicare crossover claims as well as claims from other state agencies and some long term care providers electronically.

1.5.9 Telemedicine and Telehealth Initiatives

Tennessee has embraced the use of both "telemedicine" (i.e., the provision of clinical services over distance) and "telehealth" (i.e., the broader application of technology that includes distance education, consumer outreach) to improve quality, effectiveness, and availability of care.

In 1998, the University of Tennessee Health Science Center ("UTHSC") established a point-to-point Telehealth program that is now available in 85 locations across Tennessee and in Arkansas and Mississippi. The UTHSC system provides an average of 6,930 clinical specialty visits per year.

In 2006 state-and federal grants were awarded to Community Health Network, to establish the Tennessee Telehealth Network ("TTN"). Connecting 45 federally qualified health centers and a number of mental health clinics, TTN currently

[3] Surescripts. "State Progress Report on Electronic Prescribing." Data as of December 31, 2008.
[4] Surescripts. "State Progress Report on Electronic Prescribing." Data as of December 31, 2008.

serves approximately 100,000 Tennesseans and utilizes broadband data circuits supported by the NetTN network.

1.5.10 Tennessee eHealth Network

The State of Tennessee has devoted considerable energy and resources to the technical infrastructure for health IT. In 2007, the State negotiated a ten-year agreement with AT&T for the provision of its statewide production network, NetTN. NetTN provides a secure, statewide broadband infrastructure to hundreds of state agencies, local governments, and educational institutions in Tennessee.

Through the NetTN contract, Tennessee has a secure and scalable private network that meets its internal needs and allows it to provide access to state information and services. NetTN is being used to provide telehealth services, and its broadband access often gives providers better pricing than they can get on the open market.

2. Governance

2.1 Governance and Policy Structures

In Tennessee, HIE development and use is guided by an inclusive and transparent statewide collaborative process that develops the technical, legal and business rules governing HIE. In order to achieve public policy goals and promote durable decisions, equity and fairness, Tennessee's governance structure consists of two entities balancing public and private interests: the State government and HIP TN.

2.2 Role of State Government

2.2.1 Office of e-Health Initiatives

As an office within the Tennessee Department of Finance and Administration, OeHI plays three critical roles in the governance of statewide HIE efforts in Tennessee:

1. OeHI coordinates eHealth activities and resources across State agencies;

2. OeHI serves as the State's lead participant in the public-private collaborative and to ensure that the effort serves the public interest; and

3. OeHI acts as the fiscal agent for Tennessee's $11.6 million State HIE Cooperative Agreement from the federal government.[5]

Internal State Coordination

OeHI focuses on the State government's array of health programs – from those designed to improve public health, to those managing and delivering health services, purchasing health benefits, and regulating and licensing healthcare providers – in order to align these initiatives with the broader statewide HIE objectives. Coordination of state agency efforts is facilitated through the Internal Health Council, which is described in greater detail below.

Protection of the Public Interest

While HIP TN manages the statewide collaborative process, OeHI ensures protection of the public interest within the collaborative framework through the terms of a grant between the State and HIP TN. The grant provides for the following:

- Terms on which grants will be made by the State to HIP TN, including the specific performance of benchmarks and milestones that must be achieved as a condition of funding;

[5] Within OeHI, the State HIT Coordinator and OeHI Director share responsibilities for all deliverables, milestones and reporting requirements associated with the State HIE Cooperative Agreement.

- By contractual agreement, the Commissioners of Finance and Administration and the Department of Health, the State Health IT Coordinator, the Director of Bureau of TennCare and the State's Chief Information Officer, or their designees, to attend, as non-voting participants, all Board meetings, operations council meetings and workgroup meetings of HIP TN in order to assure the greatest coordination possible and to acknowledge the interest of the State as the grant funding source and the steward of the public interest;
- Rights of the State to exercise specific approval authorization with respect to statewide policy guidance recommended for adoption by HIP TN;
- Obligation of HIP TN to coordinate policy matters with State policy through the State Health IT Coordinator; and
- Obligation of HIP TN to develop a contractual framework binding its participants to adhere to statewide policy guidance.

State Health IT Coordinator

The State Health IT Coordinator is a central figure for advancing Tennessee's HIE and health IT efforts. The State Health IT Coordinator provides leadership in the harmonization and integration of HIE, health IT, and related policies in coordination with the strategic direction of HIP TN.

The State Health IT Coordinator collaborates with the HIP TN Board and the HIP TN workgroups to ensure the best architecture and infrastructure are available for the network, assist in developing a strong sustainability model for the system, provide clinically valuable content and help to ensure patient privacy.

The State Health IT Coordinator also focuses on a number of additional aspects of the HIE including the state government's array of health programs – from those designed to improve public health, to those managing and delivering health services, purchasing health benefits, and regulating and licensing healthcare providers – in order to align its initiatives with HIP TN's mission of improving the health of people served in Tennessee.

The State Health IT Coordinator ensures compatibility and exchange with other State HIEs as well as interoperability with federal health programs.

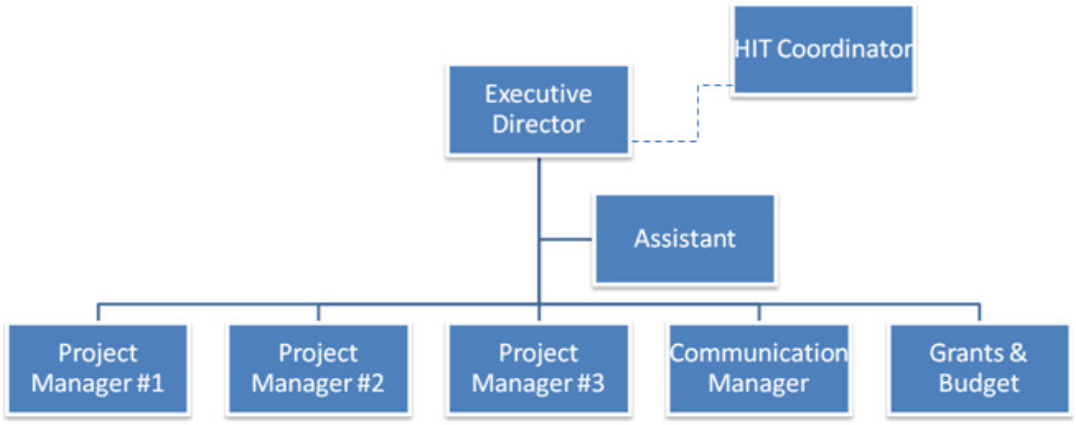
Additionally, the State Health IT Coordinator works with other State agencies to provide enhanced access to the network via the expansion of broadband programs. The Coordinator also provides a strategic leadership role in identifying additional value-added services the network can offer its stakeholders in the future.

Finally, the State Health IT Coordinator also aligns the State's resources with the services provided by tnREC to promote health IT and EHR adoption.

OeHI Staffing

OeHI is led by the Executive Director and a staff with the responsibilities, skills and experience to support the efforts of the State Health IT Coordinator to harmonize and integrate HIE, health IT and related policies. The OeHI staffing structure is provided in the figure below.

Figure 1 – Office of eHealth



2.2.2 Internal Health Council

In December 2008, Tennessee's OeHI and the Health Planning Division organized a planning group from members of the existing Health Quality Coordinating Forum and others recruited by the Health Quality Initiative participants. This group is now defined as the Internal Health Council and provides a forum for open discussion for state agencies engaged in the provision, payment, or oversight of healthcare services in Tennessee.

The Council consists of staff from:

- Department of Health, representing the public health clinics, registries, biosurveillance and communicable disease reporting;
- Department of Mental Health and Developmental Disabilities, representing their regional mental health institutes, community mental health and substance abuse providers, as well as staff involved with the effort to collect National Outcome Measures for Tennessee's mental health and substance abuse prevention and treatment ("SAPT") block grants;
- Department of Corrections, representing their medical services both within the prisons and transitioning back to the community;
- Benefits Administration Division representing the CoverKids program, Tennessee's CHIP; and
- TennCare.

The Council identifies federal and state funded programs that could be leveraged to advance health IT and HIE efforts and assesses and maps existing and planned programs to priority needs.

The Internal Health Council consists of three layers of participants with distinct and defined functions. The chart below provides an illustration of the Council structure and roles.

Table 1 – Internal Health Council Structure and Roles

Internal Health Council		
Forum Members	***HIE Steering Committee***	***Cabinet/Senior Management***
• Representatives from divisions within the core departments as well as others with a stake in advancing HIE • Includes cabinet/senior management to the extent they are able to participate as well	• OIR Chief Information Officer, TennCare Chief Information Officer, TennCare Director, Finance and Administration Commissioner, Department of Health Chief Medical Officer, Finance and Administration Director of Health Planning	• HIE Steering Committee, plus commissioners (or their designees) from the departments of Health, MHDD, and Corrections, Human Services, Children's Services and Education, and the Director of the Governor's Office of Children's Care Coordination
• Meets monthly, 2nd Fridays	• Meets as needed	• Meets twice a year (October and April) or as needed
• Invited to attend regular IHC meetings; may serve as IHC voting member designee • May lead or serve on HIP TN Operational Council, HIP TN workgroups and/or IHC workgroups	• Provides advice to and oversight of the health IT Coordinator; vets critical state policies for the Internal Health Council's review and action	• Reviews and approves policies arising from workgroup recommendations • Reviews and approves planning documents related to HIE or health IT • Establishes priorities for state investment in HIE or health IT

2.2.3 State Health Plan

Tennessee's strategy for statewide interoperable HIE is consistent with and supportive of the State's overall State Health Plan developed by the Department of Finance and Administration's Division of Health Planning and approved and adopted by the Governor on November 18, 2009.[6]

The State Health Plan serves to guide the state in the development of healthcare programs and policies and in the allocation of healthcare resources. As conceived by the General Assembly, the State Health Plan includes a vision for moving our current largely episodic healthcare system to an integrated system of care, providing opportunities for economic efficiencies while addressing the need for health promotion, health education, disease prevention, better nutrition, and chronic disease management. The following principles comprise the basis of the State Health Plan:

1. The purpose of the State Health Plan is to improve the health of Tennesseans;

2. Every citizen should have reasonable access to healthcare;

3. The State's healthcare resources should be developed to address the needs of Tennesseans while encouraging competitive markets, economic efficiencies, and the continued development of the State's healthcare industry;

4. Every citizen should have confidence that the quality of healthcare is continually monitored and standards are adhered to by healthcare providers; and

5. The State should support the development, recruitment and retention of a sufficient and quality healthcare workforce.

2.2.4 TennCare

Tennessee's statewide HIE efforts are closely coordinated and integrated with health IT adoption initiatives, in particular, planning and implementation for TennCare's incentive program for the meaningful use of certified EHR technologies. The State views the numerous interdependencies as opportunities for leveraging state activities to maximize impact and minimize duplication in efforts. TennCare staff are active participants in the HIE statewide collaborative process, serving on the HIP TN Board, Operations Council, and several workgroups.

In addition, Tennessee's statewide HIE capacities are intended to be developed to ensure that they support the evolving requirements for meaningful use, enabling

[6] Tennessee Department of Finance and Administration Division of Health Planning. "Tennessee State Health Plan. Available." November 2009. Available online at http://www.tennessee.gov/finance/healthplanning/Documents/2009TennesseeStateHealthPlan.pdf.

TennCare providers to successfully access available incentives. Reciprocally, TennCare's planning and implementation of the EHR incentive program and development of the State Medicaid Health IT Plan are being conducted jointly with OeHI and in coordination with other statewide HIE partners.

2.2.5 State Department of Health

TDOH recognizes that it plays a role in ensuring that Tennessee providers meet meaningful use requirements, and will work closely with OeHI and HIP TN to ensure connectivity to its immunization registries and other registries, as well as reportable labs and syndromic surveillance. TDOH is working to align its policies and procedures in support of HIP TN's infrastructure.

TDOH has reviewed and confirms that the HIE Operational Plan aligns with the Department's existing initiatives and future plans. The State Public Health Administrator's approval of the proposed content in the HIE Strategic and Operational Plans is provided in Appendix B.

2.3 HIP TN

Based on a thorough review of alternative governance options, stakeholders in Tennessee determined that a public-private framework led by an independent, non-profit entity was needed to ensure that the interests of patients, providers, insurers and the State are aligned. On July 31, 2009, HIP TN filed a charter with Tennessee Secretary of State to serve as the focal point for the statewide HIE collaborative infrastructure.

HIP TN brings together Tennessee's local, regional and state electronic health information initiatives and resources to form a collaborative partnership and framework. HIP TN seeks to improve access to health information so that healthcare providers and consumers can make better, more informed healthcare decisions.

2.3.1 HIP TN Mission and Vision

On March 25, 2010, the HIP TN Board approved the following vision and mission statements:

> ***Vision***: HIP TN will be a recognized state and national leader that supports measurable improvement in clinical quality and efficiency to healthcare consumers, providers, and payers through the provision of secure HIE services.
>
> ***Mission***: HIP TN is a Tennessee not-for-profit organization that works to improve access to health information through a statewide collaborative process by providing services and infrastructure for the secure electronic exchange and use of health information.

2.3.2 Structure

The HIP TN charter was approved in July 2009 and submitted to the State along with the application for incorporation as a non-profit. HIP TN was incorporated as State of Tennessee non-profit on July 31, 2009. HIP TN by-laws were approved by the Board in September, 2009. See Appendix C for the HIP TN Charter and By-Laws.

This multi-disciplinary, multi-stakeholder governance body includes representatives of key stakeholder groups and aligns with emerging nationwide HIE governance. The current composition of the Board of Directors of HIP TN includes voting representatives for:

- Patients,
- HIOs,
- Health insurers,
- Self-insured employers,
- Hospital industry,
- Physicians and other providers,
- Pharmacies, and
- Regional extension centers ("RECs").

In addition the Executive Director of HIP TN is an Ex-Officio member of the Board, and the following State officials are participants by contract:

- Commissioner (or designee) of Finance & Administration,
- Commissioner (or designee) of Department of Health,
- Health IT Coordinator,
- Tennessee Chief Information Officer, and
- Director, Bureau of TennCare.

Table 2 – Voting Director Seats and Appointees

Voting Director Seat	*Appointee*
Patient There shall be at least one representative from among the population served by healthcare providers in the State of Tennessee.	**Patrick Willard**, Associate State Director, Advocacy, AARP of Tennessee
Broad Representation of Health Information Exchange There shall be at least one representative from each of the following HIOs: CareSpark, Inc. and Mid-South eHealth Alliance. There shall also be representation from groups participating in HIE across the state.	**Robert S. Gordon,** Board Member, Mid-South eHealth Alliance **E. Douglas Varney**, Chairman of the Board, CareSpark, Inc. **Clifton Meador,** Executive Director, Vanderbilt Meharry Alliance

Voting Director Seat	*Appointee*
Health Insurers There shall be at least two representatives from those entities that contract to provide health insurance coverage to citizens of the State of Tennessee, such as insurance companies, health maintenance organizations and non-profit hospital and medical service corporations.	**Robert H. McLaughlin, MD**, Senior Medical Director, CIGNA Healthcare **Robert J. Mandel, MD**, Senior Vice President of Health Care Services, Blue Cross, Blue Shield of Tennessee
Self Insured Employer There shall be at least one representative from among those businesses in the State of Tennessee offering health insurance to its employees through a self-funded health benefit plan	**David H. Sensibaugh**, Director of Integrated Health, Eastman Chemical Company
Hospital Industry There shall be at least one representative from among hospitals providing services in the State of Tennessee.	**Reginald W. Coopwood, MD**, **FACS**, Chief Executive Officer, Regional Medical Center, Memphis
Physicians/Providers There shall be at least one representative from among the physicians providing services in the State of Tennessee. The Board has extended this representation from other clinicians including nurses, the Regional Extension Centers, and primary care providers especially those that focus on the vulnerable and underserved populations.	**BW Ruffner, MD**, President, Tennessee Medical Association **Dawn Fitzgerald,** Chief Executive Officer, QSource **Diane Pace**, Family Nurse Practitioner, University of Tennessee Health Science Center College of Nursing **Kathy Wood-Dobbins**, Chief Executive Officer, Tennessee Primary Care Association
Pharmacies There shall be at least one representative from the pharmacy industry serving Tennesseans.	**Richard H. Sain, Pharm. D.**, President, Reeves-Sain Drugstore

2.3.3 HIP TN Operating Procedures

HIP TN convenes stakeholders from across the state with a broad set of perspectives and subject matter expertise. The Board is responsible for setting direction and policy. The Operations Council is responsible for reviewing all of the activities of HIP TN including workgroup activities and recommending direction and policy based upon broad stakeholder input.

The HIP TN Board is responsible for Operational Policies for HIP TN. Policy decisions to date include: Conflict of Interest Policy, Travel Policy, and Vendor Management. HIP TN works with an accounting firm to assist in the execution of the financial procedures handed down through the contract between HIP TN and the state addressing both State of Tennessee and Federal requirements. Because HIP TN does not have employees at this time, there are no human resource policies in place.

The HIE Policy is defined in collaboration with the State of Tennessee and the HIP TN Board (with input from the Operations Council and workgroups).

2.3.4 Workplan

HIP TN maintains a workplan that is coordinated with the OeHI's broader workplan for statewide HIE and is updated on a weekly basis during a Project Status meeting. The agenda for the Project Status meeting includes a weekly review of all milestones as well as relevant tasks and dependencies. See Appendix D for the Workplan for Statewide HIE.

2.3.5 Accomplishments`

To date, HIP TN has accomplished the following:

- Incorporated in August 2009 as a non-profit;
- Established HIP TN P.O. Box, phone number, email address, and web site;
  - Web site includes HIP TN Mission, Vision, list of Board members, Board Meeting Schedule, Workgroup Meeting Schedule, News, Press Releases, and Useful Links;
- Workgroup charters, membership list, agendas and meeting materials are available on the website as well in a password-protected section;
- Procured D & O Coverage, hired a CPA firm to provide accounting services for HIP TN, and hired a firm to handle the HIP TN 501(c)(3) application;
- Approved HIP TN Mission, Vision, and Critical Success Factors;
- Established regularly scheduled Board meeting, Operations Council meetings, and workgroup meetings;
- Completed charters for Operations Council and workgroups;
- Held the HIP TN Summit on April 16, 2010, bringing together the HIP TN Board, Operations Council, and workgroups to begin work on Operational Plan deliverables and procurement requirements;
- Provided programmatic and budget information to the State OeHI to support the ONC Cooperative Agreement; and

2.3.6 Stakeholder Engagement

HIP TN, OeHI, TennCare and Tennessee's Regional Extension Center ("tnREC") meet routinely to coordinate efforts and ensure that stakeholders are engaged, that

communications are consistent, and that transparency is maintained. Stakeholder engagement tactics include, but are not limited to:

- Involvement in key workgroups outlined in section 2.3.7;
- Use of OeHI, HIP TN and tnREC web sites to share status of HIE activities, decisions of key stakeholders, lessons learned and communications pieces;
- Stakeholder meetings such as the April 2010 HIP TN Summit which engaged over 100 attendees;
- Social media including Twitter updates from HIP TN leadership; and
- Bi-weekly electronic eHealth updates via the HIP TN list serve.

2.3.7 Workgroup Framework

In 2010, HIP TN formed five workgroups: Clinical, Technology, Privacy and Security, Sustainability, and Consumer Engagement. The first four were launched in March 2010 and Consumer Engagement is scheduled to start in July 2010. Over time, additional workgroups may be chartered.

The workgroups play an essential role in representing a broad array of stakeholders affected by or involved in the statewide HIE. Workgroup chairs are represented on the Operations Council to provide a conduit for communication to and from the groups on issues related to planning, policy, procedures and operations.

The HIP TN workgroups include representation from across the state as well as from State of Tennessee agencies. To ensure broad participation, HIP TN solicited workgroup members through meeting presentations, list serve emails, and the HIP TN website (http://www.hiptn.org) as well as by "word of mouth." Members can volunteer or be nominated. In the case of nominations, there is a follow-up confirmation of a willingness to participate. The State of Tennessee identifies through its own internal process its representation on these workgroups. Workgroup leadership consists of a Chair and a Vice Chair. Workgroup chairs and vice-chairs are nominated by either the HIP TN Board or Operations Council, and then vetted by both groups, as well as by the HIP TN Program Management Staff.[7]

Each workgroup has a Facilitator and a Business Analyst to staff it. The Facilitator and Business Analyst are responsible for all meeting coordination, agenda development, meeting facilitation, and meeting documentation. The Chair is responsible for working on agenda development, leading meetings, and reviewing meeting documentation prior to distribution. The Vice Chair provides back-up support to the Chair.

[7] The only exception to this is the Privacy Security Work Group, which has two co-chairs. This work group is a re-formation of a group developed by the State in 2009, and the co-chair structure has been carried over to the HIP TN Privacy and Security Work Group. The State-developed Privacy and Security Work Group co-chairs are now the HIP TN Privacy and Security co-chairs.

Each workgroup chair serves on the Operations Council and represents his/her respective workgroup's opinions and recommendations. Workgroups make recommendations to the Operations Council, and the Operations Council vets those recommendations and takes them to the Board, when appropriate, for review and consideration for approval. See Appendix E for Workgroup Charters; HIP TN maintains up-to-date workgroup rosters and biographies of workgroup chairs on its website.

Table 3 – HIP TN Workgroup Overview

Privacy and Security Workgroup	
Co-Chairs	Vicki Estrin, Program Manager HIP TN and Randy Sermons, Attorney
Purpose	• Gather input from key stakeholders throughout the state, to inform and give feedback to the HIP TN Operations Council, Board and State officials, as appropriate, on matters related to privacy, confidentiality and security of PHI electronically exchanged; • Recommend to the HIP TN Operations Council and/or Board policies and processes that help to ensure the privacy, confidentiality and security of PHI electronically exchanged in Tennessee, consistent with the State Plan and all State and federal laws, rules, regulations and standards that may apply; • Participate in and contribute to the development and adoption of policies that ensure privacy, confidentiality and security of PHI electronically exchanged within and across the boundaries of Tennessee; • Recommend policies and processes to address and comply with patient/consumer rights related to how PHI is electronically accessed, used and disclosed; and • Identify and disseminate best practices at the national, state, and regional levels.
Tasks and Deliverables	• Documentation of Privacy and Security policies designed to guide electronic exchange of PHI statewide, and enable meaningful use; • Evaluation of the HITRUST Common Security Framework and recommendation to HIP TN Board regarding adoption of HITRUST or other appropriate framework; and • Documentation of privacy and security infrastructure requirements to ensure privacy and security of PHI electronically exchanged within and across the state boundaries.

Technology Workgroup	
Chair	Laurene Vamprine, Vice President and CIO, Erlanger Health System Vice Chair: Mike Ward, Senior Vice President and CIO Covenant Health
Purpose	• Coordinate with existing efforts at the state and local level to define, recommend and support technical infrastructure, consistent with nationally recognized standards, which helps meet the goals set out in the State's Cooperative Agreement with ONC; • Participate in state level planning processes for the purpose of enabling exchange of health information throughout the state; • Provide input on technology investments and implementations that will support exchange of health information within the state, and also with entities across state boundaries; • Consider at all times the patient's perspective in providing the exchange of information to ultimately improve patient care; and • Identify and disseminate best practices at the national, state, and regional levels.
Tasks and Deliverables	• Development and management of the deliverable timeline; • Contribution to the Operational Plan for statewide HIE that identifies technical requirements, policies, and scope of services that support statewide Health Information Exchange, as well as the exchange of health information across state boundaries, as needed to support delivery of care; • Development of an RFP outlining technical requirements, policies, scope of services, and budget constraints that is delivered to potential vendors; • Development of vendor recommendations based upon RFP responses and workgroups' evaluation; and • Development of a baseline implementation timeline.

Clinical Workgroup	
Chair	Russ Leftwich, CMIO, TennCare Vice Chair: John Pirolo, CMIO for St. Thomas Health Services
Purpose	• Gather information about priorities for clinical improvement programs, plans and outcomes from stakeholders in order to facilitate communication, coordination and alignment of priorities and efforts; • Identify common data sets, nationally standardized quality metrics, necessary clinical data elements, nomenclature, format and presentation to support exchange of clinical information, improvements in clinical care delivery and sustainability to achieve goals set by HIP TN; • Identify core quality improvement areas in accordance with the State Health Plan process to target feedback of performance information to providers and consumers to help them partner to deliver and get the care they need most; • Engage regional providers in developing sustainable regional quality improvement infrastructure to help them use quality information and disseminate and implement best practices; • Define high-value/high-priority uses and/or use cases for HIE; • Identify barriers to adoption of health IT and HIE and suggest approaches to mitigate barriers; and • Identify and disseminate best practices at the national, state, and regional levels.
Tasks and Deliverables	• Development of a list of Clinical Priorities for HIP TN and proposed measures for tracking progress; • Planning for coordination of HIP TN Clinical Priorities, State Strategic Plan, State Health Plan, REC priorities, and meaningful use requirements; • Creation of a list of prioritized data elements for exchange through statewide HIE system that will support the point of care in the primary ambulatory care settings, acute care inpatient settings and emergency departments, including list of key primary care dashboard elements needed most to track and improve quality of care for clinical priority conditions at the point of care; and • Development of a list of high priority core quality metrics for real time feedback to primary care providers on their own panel of patients with the relevant condition (diagnosis) for that particular quality metric.

Sustainability Workgroup	
Chair	Michael Scarbrough, COO, Amerigroup Vice Chair: Tony Dotson, Practice Manager, Erlanger Medical Center
Purpose	Define and recommend financial sustainability plans to support HIE activities throughout the state, beyond the initial start up funding.
Tasks and Deliverables	Development of a sustainable business model for HIP TN, regional exchanges, and overall statewide HIE.

2.4 Coordination with HITECH and Other Efforts

2.4.1 Tennessee Regional Extension Center ("tnREC")

Regional Extension Centers serve as an integral component of the strategy to help providers achieve HIE. In June 2009, a wide group of stakeholders met to consider, among other initiatives, how Tennessee would approach the establishment of RECs necessary for supporting primary care providers in achieving meaningful use of EHRs and enabling statewide HIE. Consensus of that discussion reflected that statewide efforts in Tennessee would benefit from the existence of one coordinating entity engaging the necessary resources.

The State supported QSource's independent application for REC funds, and has recruited QSource to participate as HIP TN board members and staff advisors and/or members of relevant workgroups: Operations, Clinical, Privacy and Security, Technology and Sustainability. This participation will ensure that Tennessee's HIE efforts are coordinated in such a fashion as to make grant availability and health IT adoption support part of an integrated approach, and that the successes of statewide efforts are measured in a consistent fashion.

In February 2010, HHS awarded a cooperative agreement to QSource to serve as Tennessee's regional extension center ("tnREC"). QSource is a healthcare consulting organization with offices in Memphis, Nashville and Knoxville. QSource holds the state's Medicare quality improvement organization and TennCare External Quality Review contracts. QSource provides healthcare quality improvement collaborative opportunities for providers, practitioners, and managed care plans.

The State of Tennessee and HIP TN are aligning resources with tnREC to promote the adoption of EHRs for providers. tnREC will focus on individualized support to two groups of providers, enabling both groups to qualify for entitlement funds under either Medicare or Medicaid incentive programs. Assistance for the two groups of providers will focus on the following: (1) helping providers without an EHR, or those whose current systems fail to meet meaningful use criteria, to select and successfully implement certified EHRs; and (2) among providers who already have a system, providing technical assistance in achieving "meaningful use" status.

The REC will target its most intensive technical assistance to clinicians (physicians, physician assistants, and nurse practitioners) furnishing primary care services, with a particular emphasis on individual and small group practices (those with fewer than 10 clinicians with prescriptive privileges). Clinicians in such practices deliver the majority of primary care services in Tennessee, but have the lowest rates of adoption of EHR systems, and the least access to resources to help them implement, use and maintain such systems. The REC will also focus intensive technical assistance on clinicians providing primary care in rural and critical access hospitals, community health centers, and other settings that serve the uninsured, under-insured and TennCare population.

QSource has developed a six step adoption process for ambulatory physician practices to follow throughout the EHR implementation: assessment, planning, vendor selection, vendor implementation, system evaluation and care improvement.

Figure 2 – tnREC Adoption Process Steps

All six phases of QSource's EHR implementation plan can be quantified with the use of appropriate tools that carefully guide staff through each step of the process. As successful implementations gain momentum, the State of Tennessee can reduce the rampant expansion in the cost of care delivery while improving the quality of care received by using codified data generated by EHR systems to analyze guidelines of care and determine best practices.

Table 4 – REC Service Provisions and Adoption Phases

Onsite Service Provision	Adoption Process Phase
Group Purchasing/Selection of EHR software	1-2
Onsite EHR Implementation Assistance	1-4
Onsite Practice Workflow Redesign	1-6
Functional HIE Interoperability	4-6
State Federal and State Privacy and Security Education	4-6
Workforce Development/Quality Improvement	1-6

tnREC will track ongoing information related to EHR adoption rates and meaningful use achievement, and QSource will make this information available to both the Office of eHealth and TennCare to supplement the capture of relevant adoption metrics statewide. Further, REC tracking and documentation of meaningful use achievement within targeted practices will afford a streamlined opportunity to disseminate TennCare grant funds under a REC-sponsored meaningful use certification model.

Workforce development is also an integral part of assisting practices with EMR adoption. tnREC established an Education and Technology Advisory Committee ("ETAC") to work with educational technology centers, community colleges and universities throughout the state to develop curriculum and training programs. Health IT internship programs are being developed among these partnering institutions to link tnREC participating practices with student interns.

ETAC was developed with the purpose of furthering statewide healthcare workforce development activities by identifying existing curricula based upon academic best practices and research to integrate health IT into initial and ongoing training. The ETAC will provide advice and guidance on IT curriculum, workforce development strategies, issues, directions and priorities; review curricula development; and carry out other activities as required to meet future healthcare workforce and health IT training needs in support of meaningful use, HIE, and ongoing broad workforce training and development.

In addition, ETAC will serve to support the workforce development goals outlined by the tnREC, OeHI, and HIP TN. ETAC will identify academic curricula for the healthcare and health IT workforce including content related to initial and ongoing training of healthcare and health IT professionals.

Given the workforce development goals outlined in the HITECH Act and meaningful use criteria, ETAC objectives are to:

- Create a statewide healthcare and health IT workforce development plan and communication strategy in harmonization with all relevant stakeholders, including the tnREC and HIP TN;
- Work in partnership with Tennessee's universities, community colleges and technology centers to identify best practices in curricular content related to health IT and EHRs to include in the health IT curriculum in institutions of higher learning and continuing education and/or annual employee retraining programs for all provider and non-provider healthcare professionals in healthcare organizations, regardless of size, scope, or mission (e.g., academic institutions, hospitals, clinics and state agencies);
- Identify challenges associated with the effective dissemination of educational content for continuing education and annual employee retraining programs; and
- Identify future workforce development priorities and directions for improvement and enhancement.

ETAC deliverables will include:

- Development of a statewide workforce development plan and communication strategy;
- Gap analysis related to health IT/healthcare workforce curricula; and
- Identification of opportunities or gaps, and dissemination of findings to relevant stakeholders.

2.4.2 Beacon Communities

In 2010, ONC established the Beacon Community Cooperative Agreement Program to fund communities to build and strengthen their health IT infrastructure and exchange capabilities to demonstrate the vision of the future where hospitals, clinicians and patients are meaningful users of health IT, and together the community achieves measurable improvements in healthcare quality, safety, efficiency, and population health.

Two operational HIOs in Tennessee, CareSpark and the MidSouth eHealth Alliance, applied for the first round of Beacon Community Cooperative Agreement Program funding, but did not receive awards. It is anticipated that the HIOs will pursue funding through the second round of Beacon applications, and the coalitions built in the application process will proceed and continue to seek funding to fulfill the objectives of their programs.

2.4.3 Broadband and Telemedicine

The State of Tennessee's application for the ARRA Broadband Technology Opportunities Program ("BTOP") was not awarded. Tennessee intends to reapply for Round 2. There were however four awards made in Tennessee totaling $62 million in grants and loans during Round 1. Below are details of these awards.

Table 5 – Tennessee Broadband and Telemedicine Awards

DeltaCom, Inc.	• Project Title: Last Tennessee Middle Mile Fiber Broadband Project • Grant Award 9,385,426 BTOP • To utilize next generation optical transport technology, Deltacom will create new service points into their East Tennessee high-speed transport network for Last Mile Providers deploying networks to underserved areas.
Level 3 EON, LLC	• Project Title Expanding broadband access across TN • Grant Award: $1,295,738 BTOP • Level 3 EON proposes a middle mile project to leverage its national fiber optic network by opening new access points offering underserved areas a new on-ramp to high-speed services.
North Central Telephone Cooperative, Inc.	• Project Title: Broadband Infrastructure Investment Program • Grant Award: $24,715,709 BIP • Loan Award: $24,964,000 BIP • The goal of the project is to invest in the necessary infrastructure to enable North Central Telephone Cooperative to deliver advanced voice, video, and data services at total bandwidth in excess of 20 mbps to remote and rural communities in Northern Tennessee at an affordable price within 3 years.
Connected TN	• Grant Award: $1,800,000 • The award will help Connected TN accelerate the availability of broadband in Tennessee and deliver a comprehensive map of existing broadband service to the state.

2.4.4 Workforce Development and Training

As part of the Recovery Act, the United States Department of Labor awarded a three-year $5 million grant to the Centerstone Research Institute ("CRI") to create Centerstone's Career Resource Center. The Career Resource Center will offer healthcare education opportunities, job training, employment placement assistance, and support services to 600 people in five Middle Tennessee counties: Maury, Bedford, Coffee, Marshall, and Lawrence. The programs will seek to provide training in skills needed for secure, well-paid jobs in healthcare, information technology and other high growth fields. They also will fill approximately 10,000 jobs in the next two years in areas including nursing, pharmacy technology and information technology.

Led by QSource, the ETAC will define and enhance academic curriculum to the workforce about specific legalities and requirements around privacy and security legislation, best practices and research related to integration of health IT into initial and ongoing training of health professionals, and a practical framework for monitoring progress towards meaningful use.

QSource and the ETAC will coordinate intern opportunities within participating practices for students to gain real world experience in a practice that is adopting health IT with the assistance of the REC. Internship programs for certificate, associate, and bachelor degree students will all have the opportunity to serve as an intern and assist with the EHR adoption process. Participating practices receive the benefits of extra staff assistance at low or no cost during the adoption process. Additional benefits include best practices and research related to integration of health IT into initial and ongoing training of health professionals.

2.4.5 Federal Agencies

Tennessee's eHealth efforts have been and will continue to be closely coordinated with federal programs that deliver and support healthcare delivery in Tennessee. At the State-level, Dr. David R. Reagan, Quillen Veterans Affairs ("VA") Medical Center, Chief of Staff, served on the Governor's eHealth Council and continues to be involved with efforts to extend connectivity between VA facilities and local providers.

In addition, the VA has been involved with a number of Tennessee's regional HIOs. Dr. Reagan served as the Board Chair of CareSpark and participated on several advisory committees at the MidSouth Network and VA Central Office in areas of ambulatory care, patient education, EHRs, and process improvement.

In December 2008, the Quillen VA Medical Center partnered with CareSpark for a national demonstration of exchange of patient data between the VA, the Department of Defense, CareSpark, Kaiser Permanente, MedVirginia, and the North Carolina Healthcare Information and Communications Alliance, as part of the Wounded Warrior use case for the Nationwide Health Information Network ("NHIN").

CareSpark is also leveraging its NHIN efforts to exchange data with the Social Security Administration. In 2010, the Social Security Administration awarded $1.36 million contract to CareSpark to develop, test and implement a capability to gather and relay medical records as authorized by patients applying for disability benefits. Initial testing will be conducted in collaboration with University of Tennessee Medical Center in Knoxville, as well as Holston Medical Group and State of Franklin Healthcare Associates in the Tri-Cities region. CareSpark will utilize its NHIN gateway and its standards-based HIE infrastructure to reduce time for determination of eligibility for disability benefits, thereby expediting the delivery of services to qualified applicants and payment for services rendered by their healthcare providers.

2.4.6 Coordination with Other States

Tennessee recognizes the need to coordinate state HIE activities, Medicaid meaningful use incentive payments, and the REC efforts within and across its borders. Key considerations for alignment are driven by:

- Data exchanges that naturally flow across state borders;
- Opportunities for shared HIE infrastructure design and development;
- Cross-border provider Medicaid incentive determinations;
- Approaches to provider adoption of EHRs; and
- Landscape assessments and provider surveys.

In April 2010, OeHI and the State of Alabama formed the Southeast Regional Health IT-HIE Collaboration ("SERCH") to serve as a forum for discussion among bordering states. Along with Alabama and Tennessee, participation includes Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Virginia. Through SERCH, representatives from each state's Medicaid Agency, State Health IT Offices, and RECs participate in weekly conference calls to discuss topics the groups determine to be of critical importance for advancing HIE and health IT. SERCH participants also held an all day meeting on May 26, 2010 to address key issues in greater depth.

2.4.7 National HIE Governance

OeHI and HIP TN actively monitor and participate in HIE coordination efforts at the national level. With respect to nationwide HIE governance, the Commissioner of the Department of Finance and Administration participates in the federal Health IT Policy Committee's Information Exchange Workgroup. The Information Exchange Workgroup makes recommendations to the Health IT Policy Committee on policies, guidance governance, sustainability, architectural, and implementation approaches to enable the exchange of health information and increase capacity for HIE over time.

3. Clinical Objectives and Priorities

3.1 Objectives

Tennessee is committed to improving the quality of clinical care for the citizens that receive care throughout the state. The exchange of clinical information through the statewide HIE is a critical component to achieving the broader objectives outlined in the State Health Plan. The HIP TN Board and Operations Council inserted language in the Clinical Workgroup charter to ensure that the goals of the State Health Plan be considered in setting priorities and measuring progress in clinical improvement.

3.1.1 Disease-Specific Focus

Stakeholders from across the state identified repeatedly the need for statewide HIE to facilitate improvement in the quality of care received. The Clinical Workgroup determined that focusing on a set of use cases that target chronic disease would be the best way to engage the stakeholders in understanding the role of HIE in patient care. The Clinical Workgroup acknowledged that the focus on a chronic disease did not mean that other patients should or would be excluded from the exchange of information. Data sets needed to address the chronic disease use cases will be available for use across all patients and other conditions.

The Clinical Workgroup recommended that the Clinical Use Cases address male and female patients named "Joe and Jo Diabetes."[8] Joe/Jo is a Type 1 or Type 2 diabetic patient often requiring multiple episodes of care. Joe/Jo has had a previous diagnosis of diabetes, and in each use case, it is presumed that Joe/Jo is an established patient.

The Clinical Workgroup selected the following use cases to address:

- *Diagnostic Results Reporting*: This use case allows a provider to electronically obtain relevant test results for Joe/Jo that have been performed (across providers) to create a more comprehensive approach to the clinical care of a patient. Results include diagnostic tests, lab tests and diagnostic imaging reports. The initial settings include ambulatory care practices that provide care to diabetics including but not limited to primary care provider offices, community health clinics, public health clinics, specialist offices (e.g., endocrinologists), etc. Other initial settings include hospitals (inpatient units and emergency departments) and retail clinics.

- *Medication Management*: This use case retrieves and aggregates a medication history that includes prescription information from identified sources. It is

[8] The Clinical Workgroup chose to focus on diabetes due to its high prevalence in Tennessee. The Kaiser Family Foundation's State Health Facts stated that in 2008, eight out of every 100 adults in Tennessee had diabetes, ranking Tennessee as the 6th highest state in the nation for the ratio of people with diabetes to the general population. Thirty deaths for every 100,000 adult deaths in Tennessee are due to diabetes, ranking Tennessee the 10th highest in the nation for diabetes-related deaths. http://www.statehealthfacts.org/profileind.jsp?cat=2&sub=22&rgn=44

assumed that the medication history will be incomplete and will be used to support the patient/provider conversation regarding medications. It is unlikely that any medication history initially will provide information regarding samples distributed, over the counter medications, or herbal supplements. The initial settings include ambulatory care practices that provide care to diabetics including but not limited to primary care provider offices, community health clinics, public health clinics, specialist offices (e.g., endocrinologists), etc. Other initial settings include hospitals (inpatient units and emergency departments), retail clinics and telephone encounters.

- *Transitions in Care*: This use case addresses the transitions in care that occur between providers in multiple independent organizations. It does not address transitions in care within a provider setting. The intention is to address providers' need to access clinical information and does not attempt to address the access needs of consumers. The transitions are defined as transfer between one encounter in one setting (e.g., inpatient stay or emergency room visit) to another care setting (e.g., primary care provider office). The patient may be instructed in one encounter to initiate contact with a second provider setting to continue the transition in care. The initial settings include hospitals (inpatient units, emergency rooms) and ambulatory care practices that provide care to diabetics including but not limited to primary care provider offices, community health clinics, public health clinics, specialist offices (e.g., endocrinologists), etc.

The use cases were reviewed with all of the workgroups via webinar meetings and at the April 16, 2010 HIP TN Summit. After the summit, the workgroups reviewed the settings and information for each use case and provided feedback in order to prioritize them. The use cases then were used by the Sustainability Workgroup to identify data collection needs, and provided the Technology Workgroup with a starting list of data types, data sources, and potential users that were incorporated into the RFP process.

3.1.2 Links to State Health Plan

Improving the chronic conditions for Tennesseans is a primary focus of the State Health Plan. Specifically, the State Health Plan references a number of initiatives relevant to diabetes including a State Healthcare Report Card on Diabetes and Hypertension and Coordinated School Health Programs.

The Health Quality Initiative, a study group of state government health, healthcare, and health planning experts and private sector volunteers convened by the Commissioner of Finance and Administration for the state, produced the State Healthcare Report Card on Diabetes and Hypertension published in March, 2009.[9] This report provides information on both conditions at county and regional levels within Tennessee. The Health Quality Initiative will build on the lessons learned

[9] Available online at http://www.state.tn.us/finance/HealthPlan/dhpshtml.

in creating this report for increased analysis of the quality of healthcare at the local level. The Coordinated Health School Health Programs address issues related to diabetes such as obesity, physical activity, education, nutrition and diet.

The State Health Plan, addressing the connections to eHealth and the importance of health IT and HIE, was presented at the February 18, 2010 HIP TN Board meeting. The HIP TN Board reiterated its support for leveraging statewide HIE services to yield measurable quality improvement in the clinical care that patients receive when measures are defined.

3.1.3 Meaningful Use Objectives

The information prioritized by the Clinical Workgroup was cross referenced with the federal government's proposed objectives and criteria for the meaningful use of EHR technologies. Specifically Joe/Jo Diabetes will assist in the collection and reporting of the following proposed quality measures:

- Diabetes Mellitus: Hemoglobin A1C Poor Control;
- Diabetes Mellitus: Low Density Lipoprotein ("LDL-C");
- Diabetes Mellitus: High Blood Pressure Control; and
- Diabetic Retinopathy: Documentation of presence or absence of macular edema and level of severity of retinopathy.

The State's intent is to align clinical priorities and implementation with stages of meaningful use requirements, as follows. For Stage 2, CMS may also consider applying the criteria more broadly to both the inpatient and outpatient hospital settings.

Table 6 – Stages and Anticipated Requirements for Meaningful Use

Timeline	Anticipated Requirements
Stage 1	1. Capturing health information in a coded format 2. Using the information to track key clinical conditions 3. Communicating captured information for care coordination purposes 4. Reporting of clinical quality measures and public health information
Stage 2	1. Disease management, clinical decision support 2. Medication management 3. Support for patient access to their health information 4. Transitions in care 5. Quality measurement 6. Research 7. Bi-directional communication with public health agencies

Timeline	Anticipated Requirements
Stage 3	1. Achieving improvements in quality, safety and efficiency 2. Focusing on decision support for national high priority conditions 3. Patient access to self-management tools 4. Access to comprehensive patient data 5. Improving population health outcomes

3.2 Selection and Prioritization of Use Cases

The Clinical Workgroup began with three initial use cases that were intended to facilitate meaningful use of health information and deliver value to providers from the statewide HIE.

The choice of "Joe/Jo" as a baseline was not to limit the discussion to only diabetes but to understand the flow, data sources, and settings, and as data were identified, discuss whether it could be extended to a broader patient population. For example, lab values are an important component in managing the diabetic population. If lab values are being shared, they could be shared for all – not just diabetic – patients. The use cases are intended to be complementary, acknowledging that there will be overlap between the Transitions in Care, Medication Management and Diagnostic Results Reporting use cases.

In March and April 2010, the use cases were shared and iteratively updated with all of the workgroups and the Operations Council. The Clinical Workgroup incorporated feedback and responded to specific questions or concerns as it iterated the use case of Joe/Jo Diabetes.

The Clinical Workgroup prioritized both settings (sources and users) and minimum information needed to support the use cases into Phase 1 and Phase 2. The workgroup discussed that some settings and information may be extended into future phases. Phase 1 and Phase 2 will be reviewed and revised by the Technology Workgroup to reflect requirements for the RFP as well as what can be done sooner as opposed to later. In addition, the Privacy and Security Workgroup will provide guidance on policy issues related to specific settings and specific information types. The information listed under Phases is not prioritized within a Phase.

Table 7 – Use Cases

Diagnostic Results Reporting		
Summary	Allows a provider to electronically obtain test results for Joe/Jo Diabetes that have been performed (across all providers) to provide a more comprehensive approach to the clinical care of a patient.	
Assumptions	Results include diagnostic tests, lab tests, and diagnostic imaging reports.	
Patient/Provider Flow	1. Provider identifies need for test. 2. Provider (authenticated) queries for past test results to determine which test(s) are appropriate. If multiple test results are available, provider is able to compare the results over time. Provider may choose not to order a test based on results available or may choose to order a complementary test. 3. Test is ordered for the patient through native EHR system. 4. Test is performed. 5. Results are available to the provider and will be available to future providers.	
Settings	**Phase 1**	**Phase 2**
	• Ambulatory care settings (where Joe/Jo presents for outpatient care) • Emergency room • Inpatient acute care • Retail clinics	• Long-term care • Home health • Community based screenings • Telephone encounters • Telemedicine encounters • Mobile access • Outpatient treatment facilities • Employer-based clinics/occupational health clinics • County correctional facilities • Residential treatment facilities
Minimum Information Needed to Support Use Case	• Lab values or report results • Date/time labs were resulted • Reference lab standards/ranges • Comments associated with lab values • Performing location • Pending tests/status of tests • Source of sample • Date/time sample collected • Ordering provider	• Performing technician identity • Interpreting clinician • Pathology sanctioned data elements as specified in pathology messaging standards

<table>
<tr><th colspan="3">Medication Management</th></tr>
<tr><td>Summary</td><td colspan="2">Retrieves and aggregates a medication history that includes prescription information from identified sources.</td></tr>
<tr><td>Assumptions</td><td colspan="2">Medication history will be incomplete and will be used to support the patient/provider conversation regarding medications. It is unlikely that any medication history initially will provide information regarding samples distributed, OTC meds or herbal supplements.</td></tr>
<tr><td>Patient/Provider Flow</td><td colspan="2">1. Patient presents for care.
2. As part of the intake process (regardless of setting), provider queries for “medication history.”
3. Provider reviews the information and identifies medications prescribed but not filled, potential interactions, medications to continue/discontinue, refills, etc.
4. Provider diagnoses and treats patient in appropriate manner.</td></tr>
<tr><td rowspan="2">Settings</td><td>Phase 1</td><td>Phase 2</td></tr>
<tr><td>• Ambulatory care settings (where Joe/Jo presents for outpatient care)
• Emergency room
• Inpatient acute care
• Retail clinics
• Telephone encounters</td><td>• Long-term care
• Home health
• Telemedicine encounters
• Emergency medical response</td></tr>
<tr><td>Minimum Information Needed to Support Use Case</td><td>• Dose and form
• Instructions
• Most recent fill date
• Medication allergies and adverse reactions
• Quantity dispensed
• Prescribing provider
• Source of data in medication history
• Number of refills remaining</td><td>• Linked diagnosis to medication (if available)
• Formulary
• Standard prescription elements</td></tr>
</table>

Transitions in Care		
Summary	Addresses the transitions in care that occur between providers in multiple independent organizations and how providers use HIE to access clinical information.	
Assumptions	Does not address transitions in care within a provider setting. Does not address access needs of consumers. The transitions are defined as transfer between one encounter in one setting (e.g., inpatient stay or ER visit) to another care setting (e.g., primary care provider's office). The patient may be instructed in one encounter to initiate contact with a second provider setting to continue the transition in care.	
Patient/ Provider Flow	1. Patient presents for care in a healthcare setting # 1. 2. Patient requires follow up in another provider setting (healthcare setting #2). 3. Healthcare setting #1 "notifies" healthcare setting #2 that the patient needs to be seen for follow-up care. The patient may be instructed to contact healthcare setting #2 in lieu of an electronic notification process. 4. Healthcare setting #1 makes the data available (in a secure manner). 5. Healthcare setting #2 (once authenticated) retrieves the data to facilitate the appropriate follow up care. This could involve healthcare setting #2 contacting the patient to ensure the follow up care. 6. Patient presents for care at healthcare setting #2. Clinical data is available to the provider to continue care.	
Settings	**Phase 1**	**Phase 2**
	• Ambulatory care settings (where Joe/Jo presents for outpatient care) • Emergency room • Inpatient acute care	• Long-term care • Home health • Hospice • Outpatient treatment facilities • Retail clinics • School health • Employer-based health clinics • County correctional facilities • Children's services • Community mental health centers
Minimum Information Needed to Support Use Case	• Admission date and time • Discharge date and time • Facility of encounter • Problem list • Medication list and medication allergy list • Diagnostic tests performed and test results • Discharge medications, diagnosis, disposition and instructions • Procedures performed • Pending/follow-up appointments • Patient Demographics • Legal guardian for consent • Prescribed diet being followed • Vital signs including BP, BMI and weight • Provider seen/attending physician • Immunizations	• Consultants seen (including educators) • Presenting problem • Tests scheduled past discharge • Insurance • Demographics relevant to meaningful use • Clinical observations • Identifying info from first treating facility

4. Widespread Availability of Health Exchange Services

In Tennessee, multiple providers have direct access to a range of HIE services through regional HIOs. Currently, three HIOs, CareSpark, MidSouth eHealth Alliance, and West Tennessee Healthcare, are operational and three others are in advanced planning stages.

Name (Date Launched)	**Location**	**Scope-Participation**	**Stage**[10]
CareSpark (2005)	34 counties in east TN & southwest VA[11]	• 6 health systems (comprised of 40 hospitals) • Local physicians • Health plans • Public health departments (2 states, 9 regional agencies) • Federal agencies (VA)	5
Innovation Valley Health Information Network (2003)	Knoxville region	• 4 health systems • 14 hospitals	3
Middle Tennessee eHealth Connect (2009)	Nashville region	• 4 health systems • 5 safety net clinics	3
Middle Tennessee Rural Health Information Network (2007)	Upper Cumberland region of Middle Tennessee	• 3 critical access hospitals • 1 tertiary referral hospital	2
MidSouth eHealth Alliance (2004)	Memphis region	• 15 hospitals • 16 clinics (including 9 safety net clinics) • 1 medical group	5
West Tennessee Healthcare (2000)	Jackson region	• 5 community hospitals • Local providers	5

See Appendix F for detailed Tennessee Regional Health Information Profiles.

Despite the continued growth of HIOs, a significant number of providers currently do not have readily available access to HIE services through HIOs or other means. To ensure that HIE services are broadly and cost-effectively available statewide, the HIP TN Board is assessing requirements for organizations to become qualified to connect to the statewide HIE.

[10] This analysis utilizes the eHealth Initiative's Regional HIO and HIE implementation scale. Relevant stages include:
Stage 2: Getting organized; defining shared vision, goals, and objectives
Stage 3: Transferring vision, goals and objectives to tactics and business plan
Stage 4: Well under way with implementation -technical, financial and legal
Stage 5: Fully operational; transmitting data
Stage 6: Fully operational; transmitting data and have a sustainable business model
Stage 7: Expansion to encompass a broader coalition of stakeholders

[11] Includes 17 counties in Virginia.

The HIP TN Board formed a sub-committee on April 22, 2010 to define the characteristics of "Qualified Organizations." Rob McLaughlin, Board member, leads the effort, in addition to Vicki Estrin, Program Manager, Kathy Wood-Dobbins, Board Member, Will Rice, Director of OeHI, and representations from MidSouth eHealth Alliance, Middle Tennessee eHealth Connect, and CareSpark. The purpose of this sub-committee is to operationally define the qualification for organizations to connect and participate in statewide HIE. This group is charged to respond to the following questions:

- What are the requirements for a Qualified Organization to connect to the statewide HIE?
- What are the characteristics (security, privacy, technical, and sustainability) of a Qualified Organization?
    - What is the definition of a Qualified Organization?
    - Will connectivity to the statewide HIE be done through Qualified Organizations?
    - Is a Qualified Organization geographic or non-geographic?

The sub-committee will recommend a direction at an upcoming Board meeting

5. Technical Infrastructure

5.1 Introduction

A functional statewide HIE is a "system of systems," in other words, a collection of parts that work together to achieve common purposes based on an agreed upon set of rules. Within this system of systems the "parts" consist of the networks and applications that support three broad classes of entities:

1. Qualified Organizations (e.g., HIOs) that serve multi-stakeholder entities and enable the movement of health data;
2. Care delivery organizations that are part of the network, disease management, clinical decision support and other clinical applications; and
3. Specialized participants that operate for specific purposes including, but not limited to, the delivery of lab services, radiology, public health, research, and quality assessment.

Many of these entities have their own health IT systems and networks which at any point in time will be in different stages of their life cycles, will be built on many different technologies, and have differing priorities regarding the data they collect and transmit. The statewide HIE is not intended to supplant these networks, but rather is envisioned as a flexible, open framework that cost-effectively supports the inter-organizational exchange of data and access to shared services.

As described in the Strategic Plan, Tennessee plans to establish statewide HIE services to facilitate the exchange of information between Qualified Organizations. Participation in the statewide HIE is voluntary. It is assumed that Qualified Organizations can exchange health information within their organization, but will need a pathway and a process to exchange information with other Qualified Organizations, state and national agencies and/or providers, interstate HIOs, and other information sources to be determined.

Tennessee's statewide HIE framework consists of three categories of services: Core Services, Enterprise Services, and Value-Added Services. Core Services will provide the secure pathway for access to services managed by state agencies (Enterprise Services) and additional Value-Added Services offered by HIOs, vendors, or other organizations.

This approach provides flexibility and cost effectiveness. The availability of Enterprise Services will be based on state or federal priorities, guidelines, and/or mandates and deployed incrementally in phases based on the expected value derived from their use. Similarly, Value-Added Services will be developed as they are determined to be a significant part of improving the patient's health experience. Moreover, by consolidating access to the Enterprise Services and Value-Added Services through the Core Services, the state will be able to share and minimize operational costs, increase user acceptance and participation, and maximize benefits to all stakeholders. The State and HIP TN will continue to assess the most effective mechanisms and timing for provision of Enterprise and Value-Added Services through Core Services, taking into account costs, contractual obligations, and sustainability considerations.

On February 21, 2010, the HIP TN Board adopted a statewide technical framework comprised of Core Services, Enterprise Services, and Value-Added Services. HIP TN and the State then began the process of defining the functional, technical, security, and financing requirements for each service.

HIP TN's first task was to develop the specifications of the Core Services which would provide the foundation through which Qualified Organizations would access both the Enterprise and Value-Added Services. HIP TN will procure and operate the Core Services and potentially a number of Value-Added Services. In a parallel process, the State worked with HIP TN and technical experts to define the Enterprise Services, which it will determine how best to procure and operate.

Below are additional details on the critical success factors, the process and deliverables for the definition of the business, technical, and privacy requirements, and the definition and alignment of statewide HIE services.

5.2 Critical Success Factors

Stakeholders were interviewed in December and January to gain an understanding of what would be needed to have a successful "statewide HIE." The stakeholders included HIP TN Board members, executive directors from three HIOs, and QSource. A list of Critical Success Factors was presented to the Operations Council in February 2010 and formally adopted by the HIP TN Board at the March 25, 2010 board meeting.

Critical success factors for statewide HIE are as follows:

- Support the improvement of Tennessee's overall health status through HIP TN's activities and work;
- Identify what we need to (or can) do to support and contribute to the improvement of Tennessee's health status through the State Health Plan process;
- Emphasize that technology is a means to support HIP TN's mission and vision;
- Take a leadership role in defining, supporting and adopting nationally recognized standards related to HIE at a national level as well as within the state;
- Include and focus upon the health information needs of healthcare consumers;
- Exchange clinical health information as appropriate that is meaningful to clinicians;
- Maintain consistent support of statewide leadership for HIP TN's offering of statewide HIE through services and infrastructure;
- Leverage existing technology investments at the organizational, local, regional and state levels;
- Preserve local autonomy while supporting the needs for cross-community health information sharing;
- Develop a sustainability strategy that brings and proves value and identifies how to prove value to payers, employers, etc.;
- Coordinate and support effective exchange of health information across state lines; and

- Continuously improve through the identification (and when appropriate adoption) of best practices at the national, state, regional, and local levels.

Based on the recommendation that it is more economical and secure to limit the number of connections and interfaces to the Enterprise and Value-Added Services, the HIP TN Board approved a motion during the April 2010 Board Meeting that Enterprise and Value-Added Services must be accessed through the Core Services.

5.3 Business, Technical, and Privacy and Security Requirements

HIP TN's Core Services infrastructure is not intended to be a central repository; however, it is does acknowledge that there will be circumstances in which transactional data must be captured and retained (i.e., through the use of audit logs). HIP TN intends to store as little data as possible except to the extent necessary for the transport of information. HIP TN will accomplish this as the "hub of hubs" that provides service to support connectivity and data transport between Qualified Organizations.

5.4 Technical Architecture

Tennessee's technical approach to statewide HIE consists of three layers of services:

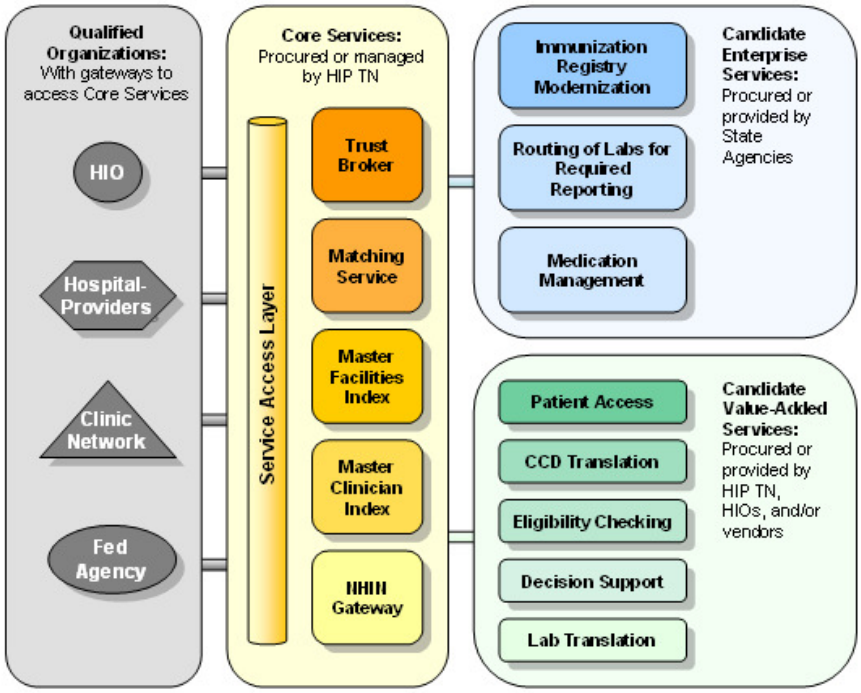
- *Core Services*: Services to help organizations locate, positively identify, and determine how to exchange information securely across organizational boundaries;

- *Enterprise Services*: Services to help organizations meet the federal criteria and state requirements for the meaningful use of certified EHR technologies; and

- *Value-Added Services*: Services for inclusion within the statewide HIE framework based on the feasibility, cost, and value of the proposed service. It is anticipated that services will evolve and be accessed through HIP TN's provision of core services

The proposed relationships between the components and consumers of statewide HIE services are depicted on the following page.

Figure 3 – Relationships Between Components and Consumers of HIE



5.4.1 Core Services

The goal of Core Services is to provide a lightweight and flexible infrastructure to provide these functions and serve as the gateway through which authorized organizations securely access the Enterprise and Value-Added Services.

Core Services create a foundation for organizations and participants to exchange health information across their organizational boundaries, such that two entities that have not necessarily exchanged information previously can:

- Identify and locate each other in a manner they both trust;
- Reconcile the identity of the individual patient to whom the information pertains; and
- Exchange information in a secure manner that supports both authorization decisions and the appropriate logging of transactions.

The architecture, based on a "hub of hubs," assumes that although much HIE is local, increasing value will accrue to broader HIE, from obtaining information relevant at the point of care such as non-local encounters and analytical services such as clinical decision support to public health and emergency response.

The Core Services will assure **authentication** of the clinician before enabling a request for information and **authorization** of the clinician to view the requested information. The Core Services will support both push and pull transactions.

Push transactions will make use of the Master Clinician Index to enable sending information to a provider, once the sender has received authorization. For a pull transaction, the Core Services will **identify** the patient and locations of information across multiple venues and report the authorized patient information that is available back to the clinician. After reviewing the information, the clinician will be able to request that all or some of the information be retrieved and can then use the information for point of care discussion and decision making with the patient.

HIP TN established the definition of Core Services as its first priority. Beginning in February 2010, the Clinical, Technology, and Privacy and Security Workgroups met weekly to define the requirements for each core service. In June 2010, HIP TN will issue a Request for Proposal ("RFP") based on the requirements and specifications developed through the collaborative workgroup process.

The Core Services consist of the following:

- ***Service Access Layer***: The Service Access Layer consists of uniform transport and security infrastructure based on web services standards and a Service Oriented Architecture, and is responsible for mediating all access to and from other core services: the various registries, the trust broker and the NHIN gateway. The Service Access Layer is based on the NHIN messaging platform standard as approved by HHS. This uniform interface simplifies interoperability and shields the other Core Service components from requestors/receivers/information providers, while also ensuring proper basic security is enforced. The Service Access Layer handles all transactions (push/pull) to and through the core services. It acts as the method to transport information to/from Enterprise and Value-Added Services. It works with the Trust Broker to establish authentication and maintains statistics on users, transactions, and information traffic.

- ***Person/Patient Matching Service***: This service provides three capabilities. The first capability is a reconciliation service that matches (cleans up) records from existing systems to provide a definitive mechanism for locating all records for a patient. This is usually accomplished via a probabilistic algorithm with optional manual resolution when the algorithm fails. Records may stay in the existing system or some or all of those records may be moved or copied into this service's storage. The default approach is to keep records in their current location with the possible exception of limited demographic data. The second capability enables requesting a list of patient information documents using this index, either via a demographic attribute query (i.e., find all patient info for the patient with <name, date of birth, …>) or via a direct index lookup if the querying system has the patient index available. The third capability enables requesting one or more of the documents listed from a query be transferred to the requester's system.

- ***Master Facilities Index***: This component is an index of facilities with which the clinician (or other user) registered in Tennessee has an affiliation/relationship. It processes additions, deletions, and updates to the facility index and processes requests for information from facilities index.

- ***Master Clinician Index***: This component is an index containing all relevant information on all registered clinicians within Tennessee. It processes additions, deletions, and updates to relevant clinician information. It will process requests for relevant clinician information. "Clinician" is broadly defined to include all certified and licensed clinicians (e.g., physicians, nurse practitioners, nurses, certified nursing assistants, medical assistants). Recognizing that this data will be available from multiple sources, the intention is to partner with these sources. The intention is to include the identification of these partners in the RFP.

- ***Trust Broker***: The Trust Broker enables transaction-based routing. The component is an index of participating entities (or Qualified Organizations) including organizational details. It will store participating entity rules (based on data sharing agreements) to enable the sharing of clinical records. Information involved in the trust broker transactions includes but will not be limited to roles, patient consent, participating entity provisioning, entity de-provisioning, auditing transactions, reporting transactions, compliance with policies and procedures, authentication of participating entities and certificate authority.

- ***NHIN Gateway***: Provides for a single statewide implementation of the NHIN Connect gateway available as a web service for authorized users and entities. This service is the required standard for interoperability with federal agencies, and the proposed standard for the exchange of clinical information across the NHIN.

5.4.2 Enterprise Services

Procured and overseen by State government, Enterprise Services will help organizations meet the federal criteria and state requirements for the meaningful use of certified EHR technologies. The Enterprise Services will make a specified set of State agency data available to authorized users through HIP TN's Core Services.

The State has identified three Enterprise Services for initial deployment:

1. Medication Management,
2. Routing of Laboratory Results for Required Reporting, and
3. Immunization Registry Modernization.

OeHI is working through HIP TN and the Internal Health Council to develop the detailed specifications and requirements for each of the Enterprise Services. It is anticipated the that the Enterprise Services will go through additional refinement once the CMS final rules for meaningful use are released and assessed for their impact on HIE.

- ***Medication Management***: This service will offer a medication retrieval and aggregation of prescription (new, refills, etc.) information from identified sources (e.g., Surescripts, others) to medical providers, including pharmacists. The medication management solution may also include: (1) medication history, including analytical services and medication reconciliation, and (2) ePrescribing support, including prescription management, eligibility, and formulary information.

  This service is intended to support the Joe/Jo Diabetes Medication Management Use Case as well as more broadly the meaningful use requirements related to medication reconciliation. Specifically this service will allow for the reconciliation of prescription fill status and/or medication fill history. It enables display of a single record of both medications ordered and filled.

- ***Routing of Laboratory Results for Required Reporting***: This service will provide a centralized clearinghouse that will route laboratory reports to public health and other agencies as mandated by federal and state laws and in accordance with national standards and specifications.[12] The centralized routing service is intended to replace the numerous, point-to-point connections among laboratories, EHRs and public health databases with a single routing hub connected to participating entities.

- ***Immunization Registry Modernization***: The State will update its immunization registry to receive data through HIP TN in a format as required by the final federal rule on standards and certification. TDOH's Immunization Registry will be capable of electronically recording, retrieving, and transmitting immunization information in accordance with national standards and specifications.[13] The State intends to add capacity to the EDI engines, also used for ELR, and the AS400 server.

[12] The State currently uses the following CDC implementation guides for electronic laboratory reporting: (1) *ELR v.2.3.1: Health Level Seven Specifications for Electronic Laboratory-based Reporting of Public Health Information* and (2) *ELR v2.5.1: Centers for Disease Control and Prevention Implementation Guide for Electronic Lab Reporting to Public Health using Version 2.5.1 of the Health Level Seven Standard Protocol Version 1.0.*

[13] The State currently uses the following CDC implementation guides for immunization data transmissions: (1) *IM v2.3.1: Centers for Disease Control and Prevention Implementation Guide for Immunizations Data Transactions using Version 2.3.1 of the Health Level Seven Standard Protocol Version 2.2* and (2) *IM v2.5.1: Centers for Disease Control and Prevention Implementation Guide for Immunizations Data Transactions using Version 2.5.1 of the Health Level Seven Standard Protocol Version 1.0.*

TDOH manages all activities related to the connecting of new providers, including the execution of the trading partner agreement between the TDOH and the provider, setup of an SFTP account, and testing of bi-directional HL7 messaging between the two partners. It is anticipated that HIP TN will assist with these services as of summer 2011.

The State is also evaluating additional candidates for Enterprise Services including a registry for quality reporting and a service to facilitate public health surveillance.

5.4.3 Value-Added Services

HIP TN will explore the viability of additional Value-Added Services that provide specific functions needed for HIE that are not otherwise available to eligible providers and/or to the counterparties with whom they need to exchange health information. These services would be layered on top of and accessed through the Core Services based on the following criteria:

- Consistent with meaningful use or other federal/state requirements,
- Complementary to State developed Enterprise Services,
- Aligns with identified clinical priorities,
- Shared access accrues mutual benefit, and
- Contributes to the overall sustainability model.

Candidate Value-Added Services currently under consideration include:

- ***Patient Access:*** Meaningful use requires patient access to data electronically, though it can be via a thumb drive or alternative mechanisms. Recognizing that while many EHRs have this functionality there are others that do not. The service could provide a mechanism for patients to access their clinical information (e.g., deliver/route to the patient's preferred PHR). Initially patients will have access to Medicaid claims.

- ***Continuity of Care Document Translation:*** This service will offer a centralized clearinghouse for transforming clinical summary documents among providers and patient-designated entities. This service would be analogous to the laboratory-routing clearinghouse, and would enable organizations that may lack standards-compliant EHR systems to also exchange clinical summary data. This service will allow for the clinical summary exchange for care coordination, capability and capacity for the translation of legacy messaging to standardized CCD and/or CCR. At this time it is the preference of the Technology Workgroup to standardize on the CCD (over the CCR); however, a formal evaluation of this will take place prior to establishing this standard.

- ***Eligibility Checking:*** A central access point for EHRs and practice management systems to retrieve insurance eligibility information via EDI

transactions across various payers in Tennessee. This service would facilitate electronic eligibility checking and the fulfillment of the corresponding meaningful use criteria for the users and vendors of EHR systems, suggesting a revenue model for sustainability. In concert, the same access point may be used to enable web-based access to eligibility information for those eligible providers as yet unable to take advantage of EDI transactions (primarily small physician practices).

- ***Decision support and results:*** Expanded functionality for the laboratory-routing clearinghouse, to include a decision-support component able to automatically determine which test results can and/or must be transmitted electronically to which providers/patients/agencies per Tennessee statutes and regulations. With this, providers may access data for the purposes of improving the quality of care and increasing patient safety.

- ***Lab Translation Service:*** A service to transform laboratory result messages to conform to the format, coding, and transport requirements of the receiving EHR or public health agency; and a component to route and transform laboratory orders as well as results.

5.4.4 Alignment with NHIN

Alignment with the NHIN has two components: governance and technology. Tennessee's governance model is well-positioned to be compatible with the emerging NHIN governance principles and functions. The NHIN Governance Workgroup defined and described the key principles and functions for NHIN governance. The major NHIN governance functions include:

- Development of the Strategic Direction;
- Development and Maintenance of the NHIN Policies, Procedures, Reference Materials and Support Services;
- Development of the Legal Infrastructure;
- Management of Participation in the NHIN;
- Dispute Resolution;
- Governance of NHIN Support Services; and
- Managing Risks to the Confidentiality, Privacy and Security of Information.

From a technology perspective, as previously discussed, an NHIN Gateway is part of the Core Services. The statewide HIE will connect with the NHIN according to specifications determined by the NHIN workgroup and conform to the standards already specified by the NHIN, such as IHE and HL7.

In early 2010, ONC launched the NHIN Direct Project, a new effort to develop "lightweight" versions of NHIN's current standards and services for point-to-point data transfers with minimal technical adaptation and overhead costs. To ensure that the statewide HIE interoperates with NHIN Direct Project, OeHI

representatives currently participate in ONC's NHIN Direct Implementation Workgroup.

5.4.5 Standards and Certifications

Interoperability Standards

The Office of the National Coordinator has created a portfolio of interoperability standards as part of the NHIN Trial Implementations. This portfolio includes message format standards such as HL7; terminology standards such as ICD, CPT, NDC, LOINC, RxNorm, and SNOMED; document standards such as the CCD; and HITSP constructs such as C32, C37, etc.

The mechanisms that Tennessee will rely upon to continue our commitment to using and helping local providers migrate to health IT standards include facilitation of the care coordination and quality reporting components of meaningful use.

- The OeHI, along with our partner HIP TN, has been reviewing the Interim Final Rule from ONC and the NPRM from CMS to update our understanding of the standards that will be required to support our care coordination responsibilities as part of meaningful use of health IT. We believe that the three stages that span 2011 through 2016 in the IFR and NPRM define the long-term framework for health IT standards.
- The OeHI and HIP TN will be convening meetings in June (after ONC publishes the final rule in late spring) to review these standards requirements and develop/share our plans to comply with them for Stage One of the evolution toward meaningful use.
- The OeHI and HIP TN will work to identify specific standards coordination requirements to support our common set of users in Tennessee.

Certifications

At this time, ONC has not set forth the criteria to certify HIE networks; however, the HIP TN board plans to establish criteria for participating in statewide HIE. The intention is to define a "Qualified Organization" that meets specific criteria.

5.4.6 Implementation Schedule

HIP TN has set forth an aggressive timeline that includes the release of an RFP and the identification of a vendor by the end of the summer 2010 with a contract signed or in vendor negotiations by the end of September. The implementation of Core Services is scheduled to begin immediately after final contract signatures. It is anticipated that the following timeline will be followed:

Table 8 – Implementation Timeline

Description	Start Date	End Date
Core Services		
Procurement / RFP process	3/22/2010	9/17/2010
HIP TN Executive Board approves RFP	6/24/2010	6/24/2010
Review RFP responses and vendor demonstrations	7/14/2010	8/13/10
RFP distributed to vendors	6/25/2010	6/25/2010
Vendor proposals due to HIP TN	7/13/2010	7/13/2010
Vendor recommendation to HIP TN Executive Board	8/16/2010	8/19/2010
Negotiate contract with vendor	8/20/2010	9/16/2010
Contract signed with vendor	9/16/2010	9/16/2010
Implement Core Services w/initial Qualified Organizations	9/30/2010	7/15/2011
Provide ongoing operational support and implement Core Services for remaining Qualified Organizations	10/1/2011	9/30/2015
Enterprise and Value-Added Services		
Lab services complete, DOH ready to receive HL7 messages	Done	Done
Medication Management RFI	5/01/2010	6/07/2010
Load test current Immunization Registry service	5/17/2010	6/18/2010
Add AS400 and EDI engine capacity for Immunization Registry and Electronic Lab Reporting	6/21/2010	8/31/2010
Determine next steps for Medication Management	7/12/2010	7/30/2010
Immunization Registry Service ready with enhanced capacity		10/1/2010
Assess requirements for Stage 2 MU	1/1/2011	4/30/2011
Implement Enterprise Services – Immunization Registry for initial Qualified Organizations via HIP TN hub	7/15/2011	10/1/2011
Assess Enterprise Services & Value-Added Services to determine need for 2nd RFP	9/1/2011	12/31/2011
2nd RFP procurement process	1/1/2012	7/1/2012
Implement Enterprise Services & Value-Added Services for initial Qualified Organizations	7/1/2012	6/30/2013
Implement Enterprise Services & Value-Added Services for remaining Qualified Organizations	7/1/2013	9/30/2015

6. Business and Technical Operations

6.1 Data and Services

While coordination of statewide HIE in Tennessee will be achieved through a statewide process, the day-to-day operations of HIE will be the responsibility of multiple entities spanning the public and private sectors.

6.1.1 State Managed HIE Services

The State will manage service providers, vendors, outsourcing, RFPs and contracts in order to fulfill the resource requirements for delivery of Enterprise Services. The State is currently developing RFIs for candidate Enterprise Services that will be accessible through the HIP TN managed Core Services.

6.1.2 HIP TN Managed HIE Services

HIP TN will manage the statewide HIE infrastructure as a contracted service. In June 2010, HIP TN will release an RFP to select a vendor to provide the Core Services and provide access to the state-identified Enterprise Services and additional Value-Added Services as described in this Operational Plan.

The RFP process will be an open process (i.e., there will not be a preferred vendor list). Vendors who have been in contact with HIP TN will be notified. In addition, notification of the RFP will be communicated through the OeHI Listserv and will also be posted on the HIP TN website. The Technology Workgroup will lead the RFP review effort, but it is assumed that there will be broad stakeholder representation in the selection process from all of the workgroups. Vendor selection will be criteria based. Workgroups will develop the criteria and the HIP TN Board will review, revise and approve the criteria to be used to score each proposal. The criteria will be communicated to the vendors in the RFP document.

The selection process steps are as follows:

1. Notify vendors of the RFP at least three weeks in advance;

2. Release the RFP with about a two week turnaround for the proposals;

3. Review proposals and identify additional questions for clarification. Each vendor will be given approximately one week to respond;

4. Review all of the proposals (and answers to questions) received and score them based upon criteria;

5. Recommend to the HIP TN Board three to five vendors with whom to pursue further conversations;

6. Host vendor demonstrations in Nashville, TN for the three to five vendors recommended to the Board;

7. Prioritize vendors based upon scores and recommend prioritized list; and

8. Negotiate contract with highest priority vendor. If there are issues, it may be appropriate to end negotiations and move down the list to the next vendor.

Once a contract is signed, implementation of Core Services will begin immediately. HIP TN will be responsible for the project management related to the implementation.

6.1.3 Private Sector Owned Data and Services

Tennessee is committed to allowing the private sector to participate in statewide HIE. It is expected that the Value-Added Services will be provided by the private sector based upon identified needs in the marketplace. Assuming the Value-Added Service to be offered is compliant with HIP TN's policies and procedures, Value-Added Services could be offered using the HIP TN Core Service infrastructure as a delivery vehicle.

6.2 Staffing Plans for Statewide HIE

Table 9 – Staffing Plan for OeHI

Position Title	Description
Health IT Coordinator	Coordinates internal and external stakeholders around statewide HIE
Director Office of eHealth	Oversight of office of eHealth and grant contact person for project management and grants management
Project Manager	Manages the Internal Health Council and internal state initiatives
Project Manager	Manages the Contract with HIP TN and development of statewide HIE infrastructure
Program Manager	Coordinates with TennCare/State Medicaid program and keeps master project schedule and manages dependencies of all eHealth projects
Contract Manager	Processes invoices and enters data into state reporting system for TRAM capture and reporting.
Communication Manager	Develops and manages communication plan for office of eHealth and contributes to the statewide message through coordination with TennCare, tnREC and HIP TN

On November 30, 2009 HIP TN engaged a local consulting firm, C3 Consulting, to provide program management for HIP TN. The HIP TN program management team consists of and includes a core of six individuals: Program Manager, two facilitators, and

three business analysts. Four of the six program management team members dedicate 75 – 100 percent of their time and effort to the project. Two of the project management team members dedicate 10 to 15 percent of their time and effort to the project. Collectively, the Program Management Team works on behalf of and under the direction of the HIP TN Board and includes a core of six individuals as outlined below.

The program management team:

- Coordinates and facilitates Board related activities (e.g., meetings, issue documentation, action list management);
- Convenes, coordinates, and facilitates the Board appointed Operations Council activities;
- Convenes, coordinates, and facilitates the Board appointed workgroup activities;
- Coordinates and facilitates the vendor selection process for selecting a partner (or partners) to deliver statewide HIE services;
- Manages the business operations of HIP TN including review and approval of expenses and coordinates with HIP TN's accounting firm, Work and Greer;
- Develops and maintains the HIP TN website;
- Coordinates communications with other statewide organizations and the State of Tennessee; and
- Implements (including project management related duties) the selected solution for statewide HIE.

At the April 22, 2010 HIP TN Board meeting, board member David Sensibaugh was appointed to work with the HIP TN Program Management Team to develop a plan that would identify the organizational staffing needs and the human resource systems required to hire HIP TN employees. David Sensibaugh will deliver a plan for moving forward to the HIP TN Board at its regularly scheduled meeting on June 24, 2010. The intention is for the plan to be reviewed and revised if appropriate by the full Board with the intention of starting the implementation of the plan on July 1, 2010.

6.3 Approach for Technical Assistance to HIOs

Tennessee and HIP TN are committed to collaboration to implement technical assistance, guidance, and information on best practices to support and accelerate healthcare providers' participation in HIOs. Existing HIOs were surveyed for suggestions on Technical Assistance. The responses included access to national and statewide best practices as well as a need for assistance with education and communication around the following:

- What is an HIO?
- What is the role of HIP TN?
- How are HIOs and/or HIP TN related to meaningful use?

There is also a recognized need to provide detailed specifications and implementation guidelines for the HIOs and Qualified Organizations.

As the HIP TN Board identifies and defines a "Qualified Organization" and the requirements for a "Qualified Organization", additional technical assistance needs may be identified and will be incorporated into the broader technical assistance plan.

6.4 Standard Operating Procedures for HIE

Standard operating procedures for statewide HIE will be required across the continuum of program activities. Policies and procedures will be needed within user healthcare organizations (e.g., physician offices, clinics, hospitals) to define acceptable use, patient consent, and workflow within the environment. Data providers and data requestors will be required to adhere to contractual agreements that will be translated into policies and procedures to ensure appropriate use and compliance.

In addition, HIP TN will have policies and procedures to define the day-to-day operations as well as compliance with and facilitation of the aforementioned activities. The HIP TN Board will work with the HIP TN Program Team to establish the necessary policies and procedures needed to operate the HIP TN business reliably and securely. The Privacy and Security Workgroup has worked recently to create additional HIE specific policies and procedures and plans to continue in the coming years.

6.5 Remediation Approach

OeHI will monitor the operation of HIE throughout the state and any needed remediation will be addressed through contractual performance requirements and service level agreements.

6.6 Continuous Improvement

Tennessee and its partners in statewide HIE are dedicated to continuous improvement. OeHI maintains a common project timeline that integrates deliverables and dependencies across OeHI, TennCare, HIP TN, and tnREC. OeHI hosts weekly calls to review status of progress against milestones. Issues are addressed along with plans for resolution. If issues are related to the ONC Cooperative Agreement milestones, they are ultimately elevated to the Health IT Coordinator for resolution. Other unresolved issues will be elevated to the appropriate parties.

Within HIP TN, there are a number of checkpoints for review and feedback. Workgroups meet at least twice a month with the specific goal of gathering stakeholder feedback and provide a forum for discussion. The HIP TN Operations Council meets every other week to review and provide guidance on all workgroup activities. The regularly scheduled HIP TN Board meeting agendas include as standing items status updates on the following: Financial Status/Activities, Regional Activities, Workgroup Activities, Operations Council Activities, Communication Plan, Office of eHealth Activities, and Regional Extension Center Activities.

Within HIP TN the approach to issue resolution is to encourage discussion and a consensus based recommendation from the workgroups to the Operations Council and/or from the Operations Council to the HIP TN Board. The HIP TN Board has the ultimate

decision making and direction-setting authority. When consensus cannot be reached in a workgroup, documentation of the issue along with the different points of view will be elevated to the Operations Council for advice, and if appropriate, recommendation. When consensus cannot be reached by the Operations Council, it will document the issue along with the different points of view and elevate the issue to the HIP TN Board for a decision.

7. Legal and Policy

An essential element of a comprehensive and uniform statewide policy framework for HIE is the foundation of trust that must exist between patients on the one hand and providers and users of data on the other, and among the providers and users of data themselves. Tennessee has concluded that the most effective way to establish this level of trust is to provide an opportunity for participants in HIE to have an open and transparent process for development of policy and to agree to adhere to the policies that result.

In Tennessee, adherence to common and uniform policies will be addressed through a contractual model of participation and adherence. In the contractual model, participants will be invited to participate in the statewide collaboration process to develop legal, business and technical rules that will govern HIE in Tennessee. The resulting agreement will require the HIE participants to adhere to the rules that are adopted through the collaborative process. A component of the contractual framework may be a Data Use and Reciprocal Support Agreement ("DURSA") so that each participant in HIE will know exactly the legal, business and technical rules, including privacy and security guidelines.

Tennessee's legal and policy strategy is to utilize the statewide collaborative process administered by HIP TN to establish a common set of policies to enable inter-organizational and eventually interstate HIE while protecting consumer interests. As statewide policy guidance is developed, the HIE meaningful use criteria will be considered and incorporated.

7.1 Privacy and Security

In 2009, the OeHI assembled a group of leaders and experts from across the state to develop statewide privacy and security policy for HIE. This statewide workgroup built, not only on the experience of regional HIEs, but also on the depth and breadth of knowledge available from Tennessee's rich healthcare economy.

This group has since evolved into the Privacy and Security Workgroup of HIP TN. Its membership continues to have a diversified professional background from a broad set of stakeholders across the state including HIEs, major state hospital systems and national hospital operators, physician practices, academia, law firms, various state departments as well as professional and trade associations. The Workgroup is well versed not only in state laws but possess a depth and breadth of experience with federal laws that may affect the exchange of health information as well as the HHS Privacy and Security Framework. This HIP TN workgroup, with direction from the HIP TN Board, is already constructing an approach to privacy, security and legal HIE efforts necessary for statewide HIE.

The HIP TN Privacy and Security Workgroup is responsible for recommending policies and processes that help to ensure the privacy, confidentiality and security of PHI electronically exchanged in Tennessee, consistent with the State Plan and all State and Federal laws, rules, regulations, and standards that may apply.

The first policy that was documented addressed patient notification and the patient's right to "opt out" of sharing information for treatment purposes. The workgroup has

drafted policies to address authorization, access, audit, authentication, and breach notification.

The policies are in a final review process and will be recommended to the Operations Council and HIP TN Board for approval. The next policies to be addressed are related to sensitive data, secondary use and minors. After these policies have been drafted, the workgroup has agreed to re-visit and possibly revise the patient notification/opt out policy. The Privacy and Security Workgroup has outlined its next steps as follows:

Table 10 – Privacy and Security Workgroup Timeline

Action	Start Date	Latest Expected Completion Date	Comments
Review Patient Notification Policy and send to HIP TN Board and Internal Health Council for review and consideration	4/20/2010	6/30/2010	Policy will not address issues related to Sensitive Data
Recommend Security Framework to HIP TN Board	5/20/2010	5/20/2010	See Section 7.1.1. for further details
Finish Audit, Access, Authorization, Authentication and Breach Notification policies to forward to the HIP TN Board and the state's Internal Health Council for review and consideration	5/1/2010	7/31/2010	Policies will not address issues related to Sensitive Data
Document detailed policy structure between HIP TN level policies and "Qualified Organization" policies	6/1/2010	6/30/2010	
Draft Sensitive Data Policy (or Policies)	6/1/2010	8/31/2010	Randy Sermons, legal counsel for HIP TN and co-chair, has done a review of all state laws. The workgroup has reviewed some of the issues but has not begun drafting policy
Develop HIP TN level policies	8/1/2010	9/30/2010	
Forward Sensitive Data Policy to HIP TN Board and the state's Internal Health Council for review and consideration	9/1/2010	10/31/2010	
Forward HIP TN level policies to HIP TN Board and the state's Internal Health Council for review and consideration	10/1/2010	10/31/2010	
Review Security Framework to determine the security language that will flow down in the contracting process with Qualified Organizations	11/1/2010	11/30/2010	

Action	Start Date	Latest Expected Completion Date	Comments
Publish HIP TN Privacy and Security Policies on HIP TN Website	11/1/2010	11/30/2010	Assumes approval from the HIP TN Board and Internal Health Council. Policies will be reviewed annually
Draft Contract for Data Sharing through the HIP TN Core Services	11/1/2010	12/31/2010	Will require compliance with security framework and policies
Review and revise contract framework with feedback from stakeholders beyond the workgroup membership	1/1/20111	3/31/2011	
Recommend Contract for Data Sharing through HIP TN Core Services to HIP TN Board and the state's Internal Health Council	4/1/2011	4/30/2011	All stakeholders involved with HIP TN workgroups, Operations Council, Board, and Internal Health Council will be informed throughout this process
Begin the process of signing the Contract for Data Sharing through HIP TN Core Services with initial Qualified Organizations	5/1/2011	6/30/2011	This will be an ongoing process

7.1.1 Security Framework

The Privacy and Security Workgroup at the April 16 HIP TN Summit created a sub-group to focus on the Security Requirements for the statewide HIE. This sub-group identified the difference between a security "standard" and a security "framework." A security "standard" is an existing set of prescribed criteria for meeting a particular business need and may be developed by a private corporation or through a collaborative effort among various entities. In the context of security for HIP TN, a security standard is a unified set of security objectives with related controls that an organization is required to implement to comply with the standard. A security "framework" is not a defined standard but is, instead, a grouping of standards. For example, a security framework may be comprised of both the HIPAA Security Rule and ISO 27002. Within the framework the standards may be mapped together and varying levels of compliance can be met.

The sub-group reported on its progress and next steps to the full Privacy and Security Workgroup on May 11, 2010. Because HIP TN will likely engage with a number of stakeholder from the private and public sectors, the sub-group identified the following standards to address:

- Federal Information Security Management Act ("FISMA") – 44 USC 3541, which encompasses a number of requirements published by the National Institute for Standards and Technology;
- ISO/IEC 27002:2005 - Information technology – Security techniques – Code of practice for information security management; and
- The Security Rule promulgated under the Health Information Portability and Accountability Act – 45 CFR Part 160.

Because of the number and varying levels of security requirements of all of the entities and stakeholders that may connect, the sub-group recommended HIP TN adopt a security framework rather than a single standard (or set of standards). This will permit HIP TN to choose the level of security most appropriate for its internal operations and to also use the same framework among connecting entities. Based on recommendations from the full Privacy and Security Workgroup, the sub-group settled on the following criteria for choosing a Security Framework for HIP TN:

1. Healthcare focused;

2. Flexibility in the implementation depending on the Qualified Organization's size and capability;

3. Acceptance in the marketplace;

4. Addressing the following privacy and security areas:

    - Access Control,
    - Human Resources Security,
    - Risk Management,
    - Security Policy,
    - Privacy breaches
    - Organization of Information Security,
    - Compliance,
    - Asset Management,
    - Physical and Environmental Security,
    - Communications and Operations Management,
    - Information Systems Acquisition, Development and Maintenance,
    - Information Security Incident Management, and
    - Business Continuity Management.

5. Reasonable in terms of implementation, certification/assessment and ongoing costs.

The sub-group is evaluating the following frameworks and intends to make a recommendation to the HIP TN Board at its regularly scheduled meeting in June 2010.

- HITRUST Common Security Framework (http://www.hitrustalliance.net);
- 2009 CCHIT Final Criteria for HIE (http://www.cchit.org/); and
- Electronic Healthcare Network Accreditation Commission (http://www.ehnac.org/).

7.2 Enforcement

OeHI is responsible for the standardization of privacy and security rules for HIE and manages this process through a contractual agreement with HIP TN. Under this agreement, HIP TN is responsible for the collaborative development of statewide HIE policies as described in Section 7.1, including privacy and security obligations of participants in the network. In addition, HIP TN is responsible for developing a contractual framework for participation in statewide HIE as discussed in Section 7.4. This contractual framework will incorporate compliance with a number of components necessary for statewide HIE, including compliance with statewide privacy and security policies as well as technical standards adopted by HIP TN.

In addition to the compliance requirements of data participants, HIP TN will maintain a monitoring and auditing oversight role. Repercussion for failure to meet contractual obligations are in the process of being defined and will be tailored to the severity of the non-compliance. These may range from a simple plan to correct any non-compliance to either temporary or permanent disconnection from the network. The statewide network is being built for the benefit of patients, providers and other stakeholders, and the goal will always be to ensure the highest level of participation consistent with sound privacy, security and legal practices.

The oversight of these activities, including the ability to audit and monitor the participants and any actions taken against a non-complying entity, will be the responsibility of a governing body that has yet to be defined. The body is expected to be composed of representatives of the entities connecting to the statewide network, HIP TN and the State of Tennessee. At this time, it is unknown what additional expertise and representation will be included but may include parties not affiliated with the above referenced group to avoid conflict of interest situations as well as to incorporate outside subject matter experts in privacy, security and other matters.

7.3 Legal and Policy Requirements

7.3.1 State

The State of Tennessee or designated agencies will consider, if applicable, HIP TN policies for use as part of their internal HIE infrastructure through adoption or regulation. The process for adoption of these policies, as defined in the Grant Contract between HIP TN and the State of Tennessee, is as follows:

1. Once an issue is identified, the Operations Council will pass the policy issue to the appropriate workgroup(s) for consideration and drafting of policy recommendations.
2. Once the workgroup(s) has drafted the policy recommendation, it will be sent to the Operations Council for review and further vetting.
3. If any revisions are required, the policy recommendation will go back to the appropriate workgroup(s) for revision based on the guidance from the Operations Council.
4. Once the policy has been revised, the policy will be sent to the Operations Council for review.
5. When the recommended policy has been fully vetted, the Operations Council will forward the recommended policy to the (HIP TN) Board for preliminary review.
6. Once the (HIP TN) Board completes a preliminary review, it shall forward the policy recommendation to the State Health IT Coordinator for consideration for adoption through the State's process.
7. At the time of adoption by the State, the policy will be forwarded to the Board for final adoption and implementation steps as necessary.

7.3.2 HIP TN

The HIP TN Privacy and Security workgroup is responsible for recommending policies and processes that help to ensure the privacy, confidentiality and security of PHI electronically exchanged in Tennessee, consistent with the State Plan and all State and Federal laws, rules, regulations, and standards that may apply. The policies approved and/or drafted to date are directed at HIOs in Tennessee accessing statewide HIE services.

At present, no policies on privacy and security exist at the HIP TN level. A process is in place, within the HIP TN Privacy and Security workgroup, to review all policies, once approved, for applicability at a HIP TN level. If necessary and appropriate, these policies will be modified to apply to HIP TN and an analysis will be done to identify any other HIP TN level policies needed to ensure the privacy, confidentiality and security of PHI electronically exchanged in Tennessee.

7.3.3 Review of Laws

A comprehensive Review of Tennessee Laws affecting the exchange of health information was undertaken in 2007. The review, while beneficial, is now three years old, and new public laws that have been passed by the Tennessee Legislature since that time will need to be reviewed. In addition, laws in existence in 2007 need to be re-analyzed given the many changes in HIE within the State and nationally. Since 2007, significant federal laws and regulations have changed and will also need to be analyzed.

The review will take the following general approach:

1. In conjunction with the Privacy and Security Workgroup, the form and format of the review conducted in 2007 will be re-evaluated. It is expected that new criteria or ideas will be brought forward and that the form and content of the review may change. In particular, since 2007 significant work has been conducted as part of the Health Information Security and Privacy Collaborative, which included recommended forms for review of state laws. These and other sources will be consulted as well as planned work as part of the State Health Policy Consortium overseen by RTI International. The two search strings originally used in 2007 will be re-evaluated and updated, if needed. Those search strings were:

    a. *To capture health-related statutes:* te(health-care health-data physician doctor pharm! psych! nurs! (physician /1 assistant) (patient /p examin!) abort! medic! surg! Radiograph radiology pregnan! organ tissue (medical vital health /1 record inform!) hospital undertaker funeral-home (adult elder child /1 abus! neglect! protect!) (work! /1 compensat!) (peer /1 review) (sex! /1 transmit!) (acquir! /1 immun!) (treat! /1 review!) (patient /p priv! confid!) (medical /1 record priv! confid!) patient death birth (expos! /p blood fluid disease))

    b. *To capture IT-related statutes:* te((info! w/1 sys!) transmi! exchang! internet electr! "world wide web" % vot! % (electr! w/1 vot!) % election %(electr! w/1 form!) %(stock w/1 exchang!) %(electr! w/3 (power energy)))

While all statutes will be pulled that meet these criteria, additional criteria may be added to specifically identify those statutes that have undergone revision or interpretation since 2007.

In addition to State statutes, significant federal laws will also be incorporated into the review, including but not limited to the following:

- The Privacy Act of 1974,
- The Health Insurance Portability and Accountability Act Privacy Rule and Security Rule,
- Health Breach Notification Rule,
- Confidentiality of Substance Abuse Patient Records,
- Medicaid Privacy Requirements,
- Genetic Information Nondiscrimination Act of 2008,
- Clinical Laboratory Improvements Act,
- Controlled Substances Act,
- Federal Policy for the Protection of Human Subjects, and
- Employee Retirement Income Security Act of 1974.

2. Each statute will be evaluated under the form and format review as agreed upon and compared with prior review work performed in 2007.

3. As each statute is evaluated, any significant issues or concerns will be brought to the attention of the Privacy and Security Workgroup for further evaluation and feedback.

4. The final format of the review will include areas of concern that should be further evaluated and addressed. It is hoped that the evaluation of these by the Privacy and Security Workgroup will help feed additional work being conducted as part of the State Health Policy Consortium.

7.3.4 Harmonization

HIP TN, in collaboration with the OeHI, will address privacy and security issues related to HIE within the State as well as bordering states. Tennessee shares common state borders with eight other states: Alabama, Arkansas, Georgia, Kentucky, Mississippi, Missouri, North Carolina, and Virginia.

In addition, two of the active exchanges in Tennessee, MidSouth eHealth Alliance and CareSpark, have patients and providers that cross state lines. Strategically it will be necessary to have more formal conversations with each of these states to identify federal and state laws and regulations and adherence to the privacy principles articulated in the HHS Privacy and Security Framework and any related guidance that is given over time.

As noted above, OeHI also co-hosts weekly calls with the Southeast Regional Health IT-HIE Collaboration ("SERCH") which includes leaders from the CMS Region IV (AL, FL, GA, KY, MS, NC, SC), as well as Arkansas and Louisiana. The purpose of these calls is to consider common regional solutions together as each state puts together their respective planning documents for CMS and ONC.

The State of Tennessee hopes to address the issues and concerns raised when sharing health information with its bordering states as well as across the nation, and has expressed this interest through planned participation in the State Health Policy Consortium under the direction of RTI International.

7.4 Contractual Framework with HIP TN

HIP TN, as the convening entity that will host the Core Services, will develop a contractual framework for participation in statewide HIE. The contractual framework will address traditional elements of data sharing and use agreements including the legal relationships between the parties, the purposes for which the exchange may be accessed and use of retrieved data, governance of the network and the participating entities, representations and warranties, disclaimers as well as liability and other standard contractual issues.

This framework will require flexibility to accommodate currently known participating entities such as the existing regional HIOs as well as a broader set of participants that will fall under HIP TN's evolving definition of Qualified Organization. As the scope of HIP TN statewide HIE infrastructure, Enterprise Services and Value-Added Services is further defined, the full contractual structure will become clearer.

It can be anticipated that the structure will be composed of a core set of legal terms defining the relationships of the parties that apply to all Qualified Organizations. Supplementing this core set would be additional participation documents permitting Qualified Organizations to participate in various portions of the infrastructure as their business needs arise. However, the level of granularity a Qualified Organization may have in participating in the various Enterprise and Value-Added Services is ultimately determined through business strategies defined by HIP TN and the State of Tennessee.

8. Evaluation

Achieving HIE goals is a systems-focused effort, involving multiple stakeholders and incremental processes. Tennessee's evaluation of statewide HIE and health IT efforts will:

1. Identify health IT and HIE efforts and ascertain their value;
2. Measure the effects on providers and consumers;
3. Determine what is working and what needs to be improved;
4. Disseminate lessons learned; and
5. Create an iterative feedback loop between planning and evaluation that ensures future strategies are refined as needed.

Tennessee will track and assess progress by employing a robust evaluation program that is coordinated across the federally-funded efforts including the tnREC and TennCare.

Below are details on the allocation of funding from the State HIE Cooperative in support of the statewide health IT and HIE evaluation efforts.

8.1 Procurement and Budget for Evaluator

OeHI, with support from HIP TN and guidance from ONC's evaluation support contractor, will develop a RFP for evaluation services that will be released in the third quarter 2010. As prescribed by the requirements of ONC's Funding Opportunity Announcement, three percent of the total project cost will be allocated to support evaluation activities.

8.2 Reporting and Evaluation Cycles

The identified evaluator will provide annual reports to OeHI and oversee a series of four evaluation cycles. The evaluation process will consist of a series of evaluation cycles, with the first beginning in October 2010, data collection occurring in December 2010, and initial report creation in February 2011. Evaluation will occur in annual cycles for the remainder of the project.

9. Financing

Expanding Tennessee's capacity for HIE so that it functions as an effective dimension of a statewide health landscape depends on the ability to both build and sustain the necessary governance, policy and technical infrastructure components.

In order to develop a sound financial strategy for statewide HIE and meet the Cooperative Agreement requirements for the delivery of a Statewide HIE Business Plan by February 2011, HIP TN created a Sustainability Workgroup in March 2010. The Sustainability Workgroup was chartered to "define and recommend financial and sustainability plans to support HIE activities throughout the state, beyond the initial startup funding." The workgroup membership reflects stakeholder perspectives from employers, payers, providers, state government, tnREC, and regional HIOs.

In April 2010, HIP TN's Sustainability Workgroup began an intensive planning process built around the steps and activities outlined below.

Table 11 – Statewide HIE Business Plan Approach

Step 1: HIE Modeling Approach and Key Assumptions	Identify principles and assumptions to guide and scope the financial planning task.
Step 2: Environmental Data Collection	Collect relevant environmental data necessary for the calculations of cost and revenue. Data includes: providers, payers, population, border states, existing HIOs, etc.
Step 3: Initial Cost and Revenue Models	Develop initial draft of overall costs and revenue for the state based on environmental data, high-level assumptions, and adoption models.
Step 4: Harmonize Model with Strategic Plan and Operational Plans	Harmonize the assumptions with the strategic and operational plan. Perform additional data collection as required to produce a second draft of the model.

The Sustainability Workgroup has identified six assumptions to be used in developing the financial model for statewide HIE (see table in section 9.6). These assumptions have been reviewed and discussed with the Operations Council and HIP TN Board. In April 2010 the Sustainability Workgroup began the Environmental Data Collection. Specific data to be collected include the following:

- Payers,
- Providers,
- Provider Organizations,
- Hospital Systems,
- Labs,
- Radiology Centers,
- Script volume by PBM,
- Regional HIOs,

- Other Aggregators, and
- Private Networks and Additional Connections.

9.1 Principles and Assumptions

Creating a sustainability approach for statewide HIE is complicated by the diffuse and often uncertain accrual of benefits, the magnitude of investment required for widespread implementation, cost variability, and the dynamic and changing incentive structures within the existing healthcare system.

The Sustainability Workgroup reviewed, revised and recommended to the HIP TN Board a set of assumptions to assist in the development of the financing models. These assumptions were iterated over a three week period and were presented to all stakeholders at the April 16th Summit. On April 22, 2010 the HIP TN Board declared its support for following principles:

- There are limited funds.
- Governance and operations costs will focus on the State-level HIE and not the governance and administrative operations of any regional HIOs, provider organizations, large health systems, etc.
    - There is a need to understand the role HIOs play in the network of networks and address their sustainability.
- Costs for participants' connectivity to the HIE will be based on adoption curves by participant type.
- The only costs included are for modification of TennCare's MMIS required for HIE. This excludes participant costs to implement new EHRs or remediate existing EHRs and clinical information systems ("CIS").
- Focus will identify additional value-added HIE products/services that can help drive revenue, including potential added costs for incremental development and/or delivery.
- All participants in HIE will access Enterprise Service(s) and Value-Added Service(s) from the statewide HIE though Core Service(s).
    - Value-Added Services refer to those services that would be offered specifically through the statewide HIE.

9.2 Environmental Data

The Sustainability Workgroup began its environmental data collection in March 2010. Workgroup members with subject matter expertise provided direction, insight on sources and assumptions about the actual data collected. Additional partners including the State of Tennessee, QSource, tnREC, and Tennessee Hospital Association provided data for analysis. Workgroup members took responsibility for much of the initial data collection and analysis. The workgroup will continue to iterate and collect data as more clarity around funding and proposed value models are evaluated.

The specific data being reviewed include:

- Providers:
  - By type (primary care and specialists M.D.s and D.Os, unidentified primary care and specialists M.D.s and D.O.s, prescribing mid-level providers, dentists, podiatrists);
  - Licensed versus practicing;
  - Location of the providers (physician practice, hospital based, FQHC); and
  - Eligible for ARRA funding;
- Provider Organizations including types and penetration of EHR/EMR adoption and eligibility for ARRA funding:
  - Hospitals/health systems;
  - Hospitals (by size);
  - Mental health hospitals;
  - Long term care facilities;
  - Rural health centers;
  - Federally qualified health centers;
  - Nursing homes;
  - Home health agencies;
  - Dialysis centers;
  - Radiology centers;
- Payers including information regarding number of covered lives and adjudicated claims at the program level;
- Laboratories;
- ePrescribing statistics; and
- Regional HIOs.

The purpose of this data is to identify potential areas for costs associated with a statewide HIE by understanding the number of and sophistication of data sources as well as the number of and sophistication of data users. This same data will also be used in the revenue models to understand the potential for revenue. Workgroup members based on their subject matter expertise are responsible for collecting the data. The data are reviewed every other week by the entire workgroup. Assumptions around the data are discussed and documented and additional data needed is identified and assigned. The Sustainability workgroup anticipates that this will be an ongoing process through July 2010.

9.3 Cost and Revenue Models

Once the initial data collection and analysis is completed, the next step will be to build the estimated Cost and Revenue Models. The expected costs include but are not limited to the following:

- Staffing (wages, benefits, taxes),
- Consulting (to supplement permanent staff for identified projects),
- Rent,

- Accounting/bookkeeping,
- Legal fees,
- Marketing/public relations,
- Insurance,
- Supplies,
- Telephone,
- Postage and shipping,
- Equipment rental and maintenance,
- Printing and publications,
- Travel/conferences and meetings,
- Technology infrastructure,
    - Implementation,
    - Maintenance,
    - Licenses and other fees; and
- Utilities.

The approach will be to model the costs and the revenues in parallel processes. The RFP process will provide additional insight into the costs associated with statewide HIE. In addition to focusing on the RFP process, the Sustainability Workgroup will work with David Sensibaugh, HIP TN Board member and Vicki Estrin to identify the operational costs associated with statewide HIE including the costs associated with HIP TN. The Sustainability Workgroup will vet and provide feedback on the approach and costs associated with operations.

To build the initial revenue models and number of approaches are planned:

- In early June, dedicate on Sustainability Workgroup call to collecting "Revenue Strategies for Statewide HIE" including but not limited to reaching out to existing organizations that participate in HIE and reaching out other statewide HIEs to document and understand different approaches. Workgroup members will be assigned to follow up and report back to the broader workgroup;
- Brainstorm in mid-June "Revenue Strategies" in order to define the value of each strategy, identify to whom the value is conferred and estimate the costs associated with the strategy; and
- Hold an in person workgroup meeting in July/early August to work on the Revenue Strategy.

An initial Cost/Revenue model will be developed and vetted with appropriate stakeholders in August and September. The Sustainability Workgroup will deliver an Initial Cost/Revenue model to the HIP TN Board on September 16th for review.

Harmonization with the Strategic and Operational Plans will take place in October and early November. The process will include reconciling any identified Value-Added Services with technology decisions made (including identified vendor(s)) during the vendor selection process. The Sustainability Workgroup will collect any additional data and/or update data collected and iterate the Cost/Revenue Model with stakeholders. A

draft Plan for Sustainability will be written and iterated with stakeholder through January with a goal of delivering the plan to the OeHI no later than January 31, 2011.

9.4 Issue Resolution and Risk Mitigation

The key to success is building a trusted infrastructure that provides value for all stakeholders and minimizes costs and risks. In its support of the statewide HIE program, OeHI will employ a proactive risk management strategy that helps manage the work effort and associated risks to deliver predictable, high quality results.

OeHI will utilize a framework that identifies and assesses risks, develops mitigation options, and tracks corrective actions and the results of those actions. Table 12 provides an initial inventory of risks and proposed mitigation strategies.

Table 12 – Risk Mitigation Matrix

Description of Risk	Probability	Impact	Mitigation Strategies
Challenge of HIE Across State Lines Exchange of data across states in a uniform and consistent manner remains a challenge, particularly for Tennessee which borders eight states	**High**	**Moderate**	Interstate exchange of health information remains a challenge for all states. In Tennessee, two operational exchanges, CareSpark and MidSouth eHealth Alliance, are exchanging data in communities that span state boundaries. Practical experiences and lessons learned from these two exchanges will be shared through the existing statewide collaborative structure and the newly formed, interstate SERCH.
Duplication of Effort Currently, multiple entities allocate resources (e.g., personnel, funding, technology, capabilities) to advance Health IT and HIE in accordance with internal priorities, which can lead to inefficient duplication of effort	**Moderate**	**High**	Resource allocation will be facilitated through a comprehensive planning process led by the State and HIP TN. In support of this process, the workgroups will identify existing assets and needs, assess opportunities for shared services and resources, and recommend strategies to help align tasks and responsibilities.

Description of Risk	Probability	Impact	Mitigation Strategies
Loss of Stakeholder Support Stakeholders face internal constraints and multiple priorities, competing agendas and financial interest between stakeholders	**Moderate**	**High**	Sustaining stakeholder support will be critical to the success of a project as complex and broad as eHealth. Based on its experience over the last five years, Tennessee will continue to advance an inclusive and transparent process of decision-making process that ensures each stakeholders needs are identified and considered. In addition, the statewide HIE program has and will continue to explore strategies to ensure that all those that wish to participate have an opportunity to do so.
Implementation Delays/Cost Overruns Technical projects of this scale and complexity typically encounter delays and cost overruns	**Moderate**	**High**	Working through the Operations Council, under the guidance of HIP TN and state government, stakeholders will be continuously informed of the status of Health IT adoption and HIE progress so necessary corrections can be made in a timely manner. Tennessee will adopt an incremental, phased approach to designing, building statewide HIE. Implementation will be rigorously and continually evaluated to identify and remediate potential problems.
Concerns about Privacy and Security	**Moderate**	**High**	Privacy and security mean more than adhering to policies, using the right standards, or purchasing products that implement privacy policies and security standards. Additional considerations are the infrastructure on which the products run and the policies that define how they will be used. The State of Tennessee is currently addressing privacy and security considerations through a statewide Privacy and Security Workgroup that has incorporated regular policy review into its deliverables. As part of the statewide HIE program, the Privacy and Security Workgroup will receive the resources and staff support required to provide ongoing assessment of the changing legal and regulatory requirements including final meaningful use criteria.

Description of Risk	Probability	Impact	Mitigation Strategies
Competing Priorities within State Government Unforeseen health priorities emerge, including but not limited to implementation of federal Health Reform Law	**High**	**Moderate**	To ensure that eHealth efforts remain a priority, the State of Tennessee continues to build these activities into the day-to-day operations of state departments and agencies. In addition to the leadership efforts that have been conducted under the auspices of the Office of eHealth Initiatives over the last five years, the State has created an Internal Health Council to coordinate Health IT and HIE activities across state government.

9.5 Controls and Reporting

OeHI will serve as the lead applicant and fiscal agent for the Statewide HIE Cooperative Agreement Program. Based on more than six years of overseeing, financing, and working with wide range of public and private stakeholders to implement statewide HIE in Tennessee, OeHI is uniquely qualified to manage this program.

The State of Tennessee uses a centralized accounting system for vendor payments and grants accounting. The Department of Finance and Administration Policy 20 requires that all grant awards must be recorded in the accounting system immediately, but not later than the end of the month in which the award was received. All grant related transactions must reference the grant number. All contracts must be entered into the accounting system and the maximum liability is recorded along with the grant number, vendor name, vendor number, begin and end period.

Federally eligible funds must be drawn by the draw date so as to not incur any liability to or from the federal government. Monthly accounting reports are printed and reviewed by the Office of Business and Finance and then shared with the program staff. Any errors or discrepancies are reviewed and corrections are made.

OeHI requires all sub-awardees, contractors and grantees to attach detailed program reports to their monthly reimbursement invoices. This report documents aggregate grant activity per month and cumulatively. The monitoring objectives are to verify:

- The reliability of the financial and programmatic progress;
- The program objectives are being met;
- The costs and services are allowable and eligible; and
- Contractual compliance.

OeHI maintains an internal spreadsheet used for tracking grant funding of each grantee and is reconciled on a quarterly basis. Grantees are required to submit invoices to the OeHI and are compensated for actual, reasonable and necessary costs based upon the grant budget. The invoice is submitted with all of the necessary supporting

documentation, prior to any reimbursement of allowable costs. All invoices are reviewed by the Office of Business and Finance before payments are completed.

9.6 Workplan

A timeline has been developed by the workgroup to deliver a plan for sustainability to the state by January 2011. To accomplish this goal the workgroup will meet weekly via webinar and is planning an in-person meeting in July 2010. Updates will be provided as needed to OeHI and the HIP TN Board.

Below is a summary of the steps with associated timeframes listed.

Table 13 – Financing Timeline

Process Step	Activities	Expected Start	Expected Completion	Comments
HIE Modeling Approach and Key Principles and Assumptions	1. Workgroup will document the Principles and Assumptions for the Financial Model 2. Present Principles and Assumptions to the HIP TN Board 3. Clarify Principles and Assumptions based on board's definition of a "Qualified Organization"	4/1/2010	5/28/2010	Principles and Assumptions were approved on April 22, 2010. Any clarification to the Principles and Assumptions will be made at the May 20, 2010 board meeting and communicated to the workgroups the following week.
Environmental Data Collection	1. Data collection has been discussed with different workgroup members taking responsibility for "getting as much data as possible." 2. Assignments were made on April 30 and data will be reviewed on May 14, 2010. Gaps will be identified with workgroups assigned to "fill in the gaps." 3. Next review of the data will be May 28, 2010. 4. Additional data collection that is deemed necessary by the workgroup will take place in June 2010.	4/1/2010	6/30/2010	The workgroup is collecting the data understanding that it will represent a "snapshot in time" and that there could be additional data that is either an update or new introduced at any time in the process of building the sustainability plan. This additional data will be factored into the analysis as appropriate.

Process Step	Activities	Expected Start	Expected Completion	Comments
Initial Cost and Revenue Models **(COST MODELS)**	1. June 1, 2010 David Sensibaugh will work with Vicki Estrin to put together a plan that addressees many of the operational costs for HIP TN. The Sustainability Workgroup will give input on expense categories and when appropriate cost calculations (e.g. benefit expenses, taxes). This plan will be presented to the HIP TN Board on June 24, 2010. 2. HIP TN will release an RFP in June. Once the proposals are received, the technology related costs will be easier to document. 3. Sustainability Workgroup will develop an initial cost model that addresses Operational Costs and Technology Costs. 4. Vet costs with stakeholders and incorporate feedback.	6/11/2010	9/17/2010	

Process Step	Activities	Expected Start	Expected Completion	Comments
Initial Cost and Revenue Models **(REVENUE MODELS)**	1. June 4, 2010 discuss with the Sustainability Workgroup process for collecting "Revenue Strategies for Statewide HIE" including but not limited to reaching out to existing organizations that participate in HIE and reaching out to other statewide HIEs. Make workgroup assignments. 2. Brainstorm on June workgroup call Revenue Strategies. Define the value of each strategy and identify to whom the value is conferred. 3. July (or first week of August) hold an in-person workgroup meeting to work on a list of Revenue Strategies (including documentation of the value) to vet with other stakeholders in August and September. 4. Incorporate feedback from stakeholders.	6/4/2010	9/17/2010	
Initial Cost and Revenue Models	Deliver initial cost and revenue model to HIP TN Board.	9/16/2010	9/16/2010	
Harmonize Model with Strategic and Operational Plan including technology decisions that have been made since June 2010	1. Reconcile any identified value added services with technology decision for Core Services. 2. Collect additional data as appropriate. 3. Iterate the Cost/Revenue Model with ongoing feedback from stakeholders including the HIP TN Operations Council and HIP TN Board.	9/20/2010	11/19/2010	

Process Step	Activities	Expected Start	Expected Completion	Comments
Produce Draft Plan for Sustainability that includes revised cost and revenue models	Draft the Plan based on feedback from stakeholder that includes and references the revised cost and revenue models.	11/19/2010	1/31/2011	

10. Communication Plan

Foundational to the successful development of statewide HIE is the creation of a communication plan that:

- Coordinates communication activities across Tennessee's HIE and health IT programs;
- Defines roles and responsibilities for communicating with various audiences; and
- Identifies the timeline for the phased development of communication messages, channels, and resources.

10.1 Statewide Coordination across HIE and Health IT Programs

The numerous health IT and health reform initiatives coming from the federal government are moving so quickly that clear explanations of goals and means are needed by all stakeholders – public and private – so they can then work together and respond to ensure these initiatives succeed. Moreover, the complexity and inter-relationships amongst the various efforts requires clear, consistent, coordinated communications.

OeHI will coordinate statewide HIE and health IT communications through an Internal Communications Council that includes public affairs and communication staff from TennCare, HIP TN and tnREC. The Internal Communications Council will meet bi-weekly to discuss upcoming events, the development of common messages and stakeholder engagement strategies, and the roles and responsibilities for communications with specific audiences. In addition, OeHI will work with ONC to coordinate communications.[14]

Each organization will maintain its own communications plans, which are summarized below.

10.1.1 OeHI Communications Plan

The communications mission of the Office is to act as translator, teacher and central point of understanding both within State government and externally. In its communications mission, the Office prioritizes:

- A comprehensive, cooperative and integrative communications program related to the adoption of HIE with key stakeholders, enhancing their understanding of how to access financial and technical assistance from the state and federal governments;
- Internal communications focused on building and nurturing a State-level eHealth communications council that works in tandem with the Internal Health Council;
- An advocacy program with key HIE stakeholders to support priority initiatives;

[14] In April 2010, ONC awarded a contract to Ketchum to develop communications for health IT and HIE at a national level and provide resources and support for communications at the state, regional and local levels.

- Supporting legislative affairs to keep the General Assembly informed about HIE activities and accomplishments; and
- Media relations as needed to keep news media informed about HIE advances and successes in Tennessee, particularly those benefiting the underserved.

Objectives of the OeHI communications plan are as follows:

1. Implement a comprehensive communication program to unite internal and stakeholder audiences in an integrative campaign to inform key constituencies (primarily providers and hospitals) on financial and technical assistance for HIE, specifically addressing the implementation and adoption of meaningful use criteria;

2. Working in tandem with the Internal Health Council, engage state agencies in a comprehensive HIE communication initiative so they, and their key constituencies, are and informed about HIE implementation;

3. Develop a network of HIE stakeholders who will create and implement communications strategies to address HIE barriers, challenges and gaps, implement HIE advocacy and awareness programs within their organizations, and support priority HIE initiatives;

4. Increase awareness and understanding among external audiences as to the accomplishments of State eHealth initiatives, successes in implementing federal stimulus funds and improvements HIE is making in healthcare delivery for Tennesseans, particularly the underserved; and

5. Implement a public education campaign on HIE that addresses: 1) privacy and security concerns; and 2) benefits of health IT in improving the delivery of healthcare, particularly to the underserved.

10.1.2 HIP TN Communications Plan

HIP TN is responsible for communication regarding statewide HIE to stakeholders and consumers, and has established multiple approaches to accomplish this task. The first step was to establish a HIP TN website (http://www.hiptn.org) and a communication matrix. In addition to the website, the workgroups are key conduit for stakeholder communication meeting at a minimum of every other week via webinar. All meetings are recorded and posted along with supporting materials and meeting minutes to a dedicated section of the HIP TN website.

In April 2010, HIP TN created a Communications Committee of the Board, led by Patrick Willard, Advocacy Director for AARP of Tennessee, who will leverage his knowledge of consumer communication regarding healthcare issues. This committee has been charged with creating a press strategy to handle press inquiries to HIP TN and press releases to the media *from* HIP TN. This press strategy will address, at a high level, statewide HIE services, their purpose, how

they will be administered, to whom they will be available, and their intended benefit. This communication committee will also further revise HIP TN Talking points to ensure that all Board members convey consistent messaging. Once approved, these talking points will populate the "Frequently Asked Questions" section of http://www.hiptn.org.

HIP TN will establish a Consumer Workgroup in July 2010 to ensure that consumers are properly informed about HIP TN, its role in statewide HIE, how they may participate in the development and use of HIE for the betterment of the care they receive, and how HIE may improve care delivery to the underserved. Preliminary membership for this workgroup has been identified and will expand over time.

10.1.3 tnREC Communications Plan

The tnREC communications strategy is to incorporate communications with key populations within current lines of communication and meet requirements and needs for additional communications as required by ARRA. The State supported QSource's independent application for REC funds, and has recruited QSource to participate as HIP-TN board members and staff advisors and/or members of relevant workgroups: Operations, Clinical, Privacy and Security, Technology and Sustainability.

The tnREC program expands QSource's existing health IT services and creates a separate division consisting of statewide and national partners in the healthcare and health IT industries.

QSource has spent considerable time branding and developing name recognition. With the addition of the tnREC division, QSource will concentrate on developing a separate division of QSource rolled under our corporate services umbrella that can retain the parent branding without alienating or dominating partner brands and identification. At the same time, QSource must meet contract expectations of recruiting over 1,500 priority primary care providers ("PPCPs") in Tennessee during a two-year period. It is QSource's objective to make health IT adoption assistance available to all PPCPs and facilitate widespread health IT adoption using statewide and individualized educational and technical assistance in coordination with state partner activities.

In order to successfully promote tnREC to achieve contract goals, QSource's marketing plan will:

- Develop key messaging that establishes tnREC as a trusted source of information and assistance with EHR adoption and implementation;
- Spend the first six months focusing on a general tnREC Awareness Campaign and Recruitment Campaign targeted at PCPs;
- Educate providers in the "meaningful use" of health IT, and assist providers in understanding how to apply and receive Medicare or Medicaid incentive

payments;
- Disseminate information on fast-track curriculum and community education programs to address the need for health IT expertise;
- Coordinate outreach and educational activities with stakeholders, partners, and the media;
- Share best practices among providers to promote peer-to-peer learning to achieve rapid learning and acceleration of practice change management cycles; and
- Develop patient/consumer educational materials to promote physician health IT adoption among tnREC assisted providers.

Primary audiences for tnREC communications include:

- Priority PCPs serving rural and underserved patient populations,
- All Tennessee providers,
- Educational partners, and
- Stakeholders.

10.1.4 TennCare Communications Plan

The strategy of the TennCare Communications Plan is to incorporate communications with key populations within current lines of communication and meet requirements and needs for additional communications as required by ARRA. Key populations/audiences are defined as follows:

Providers:

- Work with MCOs requesting they include relevant HIE information in their routine communications with providers (call centers newsletters, faxes, emails, updates, RAs, etc.);
- Provide basic HIE deadlines/info on the provider section of TennCare's website with a link to the more detailed Meaningful Use website;
- Educate the operators at TennCare's provider hotline so they can provide basic HIE information to callers and be able to direct them to other resources if appropriate (HIP TN, tnREC, eHealth, federal government, etc.);
- Hold a seminar delivered by the provider relations group in each grand region to inform providers about HIE; and
- Use the HIE knowledge of our Chief Medical Informatics Officer and his contacts to help educate provider groups and fill individual provider requests as needed.

Enrollees/Public:

- Notify enrollees via mail with information on how what their protected health information is, how it could be used in the HIE, how they can opt out, and what protections are in place;

- Provide scripts to call centers on HIE and where enrollees can go for information; and
- Provide information about HIE on the enrollee section of TennCare's website.

Media:

- Send out releases on certain milestones.

10.2 Audiences, Assignments and Timing

Target audiences include, but are not limited to the following stakeholders and partners:

- State government,
- Legislators,
- Hospitals,
- Physician practices and groups,
- Health plans,
- Local and county public health departments,
- Safety net clinics,
- FQHCs,
- Jails,
- Large employers,
- Business coalitions, and
- Patients and caregivers.

In developing messages for the stakeholder groups, OeHI, TennCare, HIP TN and tnREC responsibilities have been assigned in accordance with the following matrix.

Table 14 – HIE Communications Plan

Owner	Media	Description	Audience	Timeframe
OeHI HIP TN	Workgroup	Within HIP TN, establish a Communications Workgroup of stakeholders that will develop specific communication strategies, such as a speakers bureau, HIE/ health IT educational materials and public awareness campaign, editorial board tour, quarterly reports, etc., to address HIE barriers, challenges and gaps, implement HIE advocacy and awareness programs, and support priority HIE initiatives.	All stakeholders	Fall 2010

Owner	Media	Description	Audience	Timeframe
OeHI	Website	Create and maintain a web site for information about statewide HIE in Tennessee and information for Meaningful Use and Medicaid Incentive.	All stakeholders	Completed
OeHI HIP TN	Stakeholder HIE and Meaningful Use Speakers' Bureau and Event Schedule	Identify stakeholder champions to serve on an HIE speakers bureau charged with carrying key messages to other stakeholder groups. Recruit Core Team members, or their designees, and representatives from other stakeholder groups to serve on a Medicaid Incentives/Meaningful Use/HIE speakers' bureau. Book participants with key consumer stakeholder groups, such as Rotary, Kiwanis, etc. to deliver key messages.	All stakeholders	Fall 2010
OeHI HIP TN TennCare tnREC	Editorials, Opinion Pieces	Engage champions in writing opinion pieces, letters to the editor and columns about HIE progress and projects in Tennessee.	Media outlets	Ongoing
OeHI	Stakeholder Updates	The Office of e-Health Stakeholder Update provides weekly information on activities, events, information and milestones for those not directly involved in HIE.	All stakeholders	Weekly
OeHI TennCare HIP TN	Bi-Weekly Status Calls	Participate on bi-weekly Communications Calls with representatives from the Office of eHealth Initiatives, TennCare, and the REC to coordinate on respective activities related to HIE and meaningful use in order to identify dependencies and ensure consistent messaging.	OeHI TennCare HIP TN	Bi-weekly
HIP TN	Consumer Workgroup	Workgroup to ensure that consumers are informed about HIP TN, its role in statewide HIE, and how they may participate in HIE for the betterment of the care they receive and the care delivered to the underserved.	All stakeholders	Summer 2010

Owner	Media	Description	Audience	Timeframe
TennCare	US Mail	Notify enrollees via mail with information on how what their protected health information is, how it could be used in the HIE, how they can opt out, and what protections are in place.	Eligible providers and Hospitals	Ongoing
TennCare	Hotlines and Call Centers	Educate the operators at TennCare's provider hotline so they can provide basic HIE information to callers and be able to direct them to other resources if appropriate (HIPTN, REC, eHealth, federal government, etc.). Provide scripts to call centers on HIE and where enrollees can go for information.	Eligible providers and Hospitals	Ongoing

Appendix A: Glossary of Terms

American Recovery and Reinvestment Act of 2009 (ARRA): A $787.2 billion stimulus measure, signed by President Obama on February 17, 2009, that provides aid to states and cities, funding for transportation and infrastructure projects, expansion of the Medicaid program to cover more unemployed workers, health IT funding, and personal and business tax breaks, among other provisions designed to "stimulate" the economy.

Centers for Medicare and Medicaid Services (CMS): A federal agency within the United States Department of Health and Human Services that administers the Medicare program and works in partnership with state governments to administer Medicaid, the State Children's Health Insurance Program (SCHIP), and health insurance portability standards.

Certification Commission for Healthcare IT (CCHIT): A recognized certification body (RCB) for electronic health records and their networks. It is an independent, voluntary, private-sector initiative, established by the American Health Information Management Association (AHIMA), the Healthcare Information and Management Systems Society (HIMSS), and The National Alliance for Health Information Technology.

Consent: The Health Insurance Portability and Accountability Act Privacy Rule sets out two types of permission that are used to permit a covered entity to use or disclose protected health information: consent and authorization. A written "authorization" is required in certain circumstances, including for most disclosures of psychotherapy notes; to disclose health information for "marketing"; and for uses and disclosures that are not otherwise required or permitted by the privacy regulation. The Privacy Rule, however, generally permits a covered entity to use and disclose protected health information without an individual's authorization for treatment, payment and healthcare operations, and certain other specified purposes.

The Privacy Rule includes detailed requirements for the authorization form that must be used to obtain authorization when required. All authorization forms must contain certain core elements, including:

- A specific description of the information to be used or disclosed and the purposes of the use or disclosure;
- The identity of the person or class of persons authorized to make the requested use or disclosure;
- The identity of the person or class of persons to whom the covered entity may make the requested use or disclosure;
- A statement of the person's right to revoke the authorization; and
- The signature and date of the authorization.

A general "consent" is permitted but not required for use or disclosure of information for treatment, payment, and healthcare operations. Covered entities that choose to obtain a patient's consent for use or disclosure of information for treatment, payment, and healthcare operations have complete discretion in designing their consent form and process. The regulation does not define the term "consent" and does not specify any requirements for the content of consent

forms.

Electronic Health Record (EHR): As defined in the ARRA, an Electronic Health Record (EHR) means an electronic record of health-related information on an individual that includes patient demographic and clinical health information, such as medical histories and problem lists; and has the capacity to provide clinical decision support; to support physician order entry; to capture and query information relevant to healthcare quality; and to exchange electronic health information with, and integrate such information from other sources.

Electronic Prescribing (ePrescribing): A type of computer technology whereby physicians use handheld or personal computer devices to review drug and formulary coverage and to transmit prescriptions to a printer or to a local pharmacy. ePrescribing software can be integrated into existing clinical information systems to allow physician access to patient-specific information to screen for drug interactions and allergies.

Federal Communications Commission (FCC): The United States government agency charged with regulating interstate and international communications by radio, television, wire, satellite and cable.

Federally-Qualified Health Centers (FQHCs): "Safety net" providers such as community health centers, public housing centers, outpatient health programs funded by the Indian Health Service, and programs serving migrants and the homeless. FQHCs provide their services to all persons regardless of ability to pay, and charge for services on a community board approved sliding-fee scale that is based on patients' family income and size. FQHCs are funded by the federal government under Section 330 of the Public Health Service Act.

Health Information Exchange (HIE): As defined by the Office of the National Coordinator and the National Alliance for Health Information Technology (NAHIT), Health Information Exchange means the electronic movement of health-related information among organizations according to nationally recognized standards.

Health Information Technology (Health IT): As defined in the ARRA, Health Information Technology means hardware, software, integrated technologies or related licenses, intellectual property, upgrades, or packaged solutions sold as services that are designed for or support the use by healthcare entities or patients for the electronic creation, maintenance, access, or exchange of health information.

Health Information for Economic and Clinical Health (HITECH) Act: Collectively refers to the health information technology provisions included at Title XIII of Division A and Title IV of Division B of the ARRA.

Health Information Technology Research Center (HITRC): As set out in the ARRA, the Health Information Technology Research Center will be created by the Office of the National Coordinator to provide technical assistance and develop or recognize best practices to support and accelerate efforts by healthcare providers to adopt, implement, and effectively utilize health information technology that allows for the electronic exchange of information.

Health Insurance Portability and Accountability Act (HIPAA): Enacted by Congress in

1996, Title I of HIPAA protects health insurance coverage for workers and their families when they change or lose their jobs. Title II of HIPAA, known as the Administrative Simplification (AS) provisions, requires the establishment of national standards for electronic healthcare transactions and national identifiers for providers, health insurance plans, and employers. The Administration Simplification provisions also address the security and privacy of health data. The standards are meant to improve the efficiency and effectiveness of the nation's healthcare system by encouraging the widespread use of electronic data interchange in the U.S. healthcare system.

Health Information Partnership for Tennessee (HIP TN): A not-for-profit public benefit corporation that will act as a public-private partnership to convene the statewide collaboration process and coordinate and empower the sharing of appropriate health information thereby improving quality, coordination of care, cost efficiency and public health.

Health Information Organization: An organization that oversees and governs the exchange of health-related information among organizations according to nationally recognized standards.

Healthcare Information Technology Standards Panel (HITSP): A multi-stakeholder coordinating body designed to provide the process within which stakeholders identify, select, and harmonize standards for communicating and encouraging broad deployment and exchange of healthcare information throughout the healthcare spectrum. The Panel's processes are business process and use-case driven, with decision making based on the needs of all NHIN stakeholders. The Panel's activities are led by the American National Standards Institute (ANSI), a not-for-profit organization that has been coordinating the U.S. voluntary standardization system since 1918.

Interface: A means of interaction between two devices or systems that handle data.

Interoperability: Interoperability means the ability of health information systems to work together within and across organizational boundaries in order to advance the effective delivery of healthcare for individuals and communities.

Meaningful EHR User: As set out in the ARRA, a meaningful EHR user meets the following requirements: (i) use of a certified EHR technology in a meaningful manner, which includes the use of electronic prescribing; (ii) use of a certified EHR technology that is connected in a manner that provides for the electronic exchange of health information to improve the quality of healthcare; and (iii) use of a certified EHR technology to submit information on clinical quality and other measures as selected by the Secretary of HHS.

Medicare Advantage Plans: Health plans offered by private companies that contract with Medicare to provide beneficiaries with Medicare Part A and Part B benefits. Medicare Advantage Plans are HMOs, PPOs, or Private Fee-for-Service Plans.

Medical Home: Also known as Patient-Centered Medical Home (PCMH), defined as "an approach to providing comprehensive primary care... that facilitates partnerships between individual patients, and their personal Providers, and when appropriate, the patient's family". The provision of medical homes may allow better access to health care, increase satisfaction with care, and improve health.

Medical Trading Area (MTA): The natural market within which most referrals, hospitalizations, and other flows of both patients and patient information typically occur. Another term for this is a medical referral area.

Nationwide Health Information Network (NHIN): A national effort to establish a network to improve the quality and safety of care, reduce errors, increase the speed and accuracy of treatment, improve efficiency, and reduce healthcare costs.

National Institute of Standards and Technology (NIST): The non-regulatory federal agency within the U.S. Department of Commerce whose mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology. NIST oversees the NIST Laboratories, the Baldrige National Quality Program, the Hollings Manufacturing Extension Partnership, and the Technology Innovation Program.

NetTN: The secure, statewide broadband infrastructure developed by the State.

Notification: While the term notification is not directly contemplated in Health Insurance Portability and Accountability Act, the concept of providing notice of privacy practices is. The Privacy Rule requires a covered entity to provide individuals with a written notice describing the entity's privacy practices. Health plans are required to give notice at enrollment and to notify individuals every three years that the privacy practices notice is available. Providers that have a direct treatment relationship with an individual are only required to give notice at the date of the first service delivery; and except in emergency circumstances, must make a good faith effort to obtain a written acknowledgment from the individual of receipt of the notice. Providers must also have notice posted on the premises. Both plans and providers have special notice requirements if their privacy practices change. Clearinghouses acting as business associates of another covered entity are not required to give notice to patients. The notice must include:

- A description of an individual's rights with respect to protected health information and how the individual may exercise those rights;
- The legal duties of the covered entity;
- A description of the types of uses and disclosures of information that are permitted, including those that are permitted or required without the individual's written authorization;
- How an individual can file complaints with the covered entity and the Secretary of HHS;
- How the covered entity will provide the individual with a revised notice if the notice is changed;
- A contact person for additional information; and
- The date on which the notice is in effect.

Office of the National Coordinator (ONC): Serves as principal advisor to the Secretary of HHS on the development, application, and use of health information technology; coordinates HHS's health information technology policies and programs internally and with other relevant executive branch agencies; develops, maintains, and directs the implementation of HHS' strategic plan to guide the nationwide implementation of interoperable health information technology in both the public and private healthcare sectors, to the extent permitted by law; and provides comments and advice at the request of OMB regarding specific Federal health information technology programs. ONC was established within the Office of the Secretary of HHS in 2004 by Executive Order 13335.

Privacy: In December 2008, the Office of the National Coordinator for Health IT released its "Nationwide Privacy and Security Framework For Electronic Exchange of Individually Identifiable Health Information," (Framework) in which it defined privacy as, "An individual's interest in protecting his or her individually identifiable health information and the corresponding obligation of those persons and entities that participate in a network for the purposes of electronic exchange of such information, to respect those interests through fair information practices." This language contrasts with the definition of privacy included in the National Committee on Vital and Health Statistics' (NCVHS) June 2006 report, entitled, "Privacy and Confidentiality in the Nationwide Health Information Network." In its report, NCVHS recommended the following definition for "privacy": "Health information 'privacy' is an individual's right to control the acquisition, uses, or disclosures of his or her identifiable health data."

QSource: A leading not-for-profit quality improvement organization headquartered in Nashville, Tennessee, and the State's Quality Improvement Organization.

Regional Extension Center (REC): As set out in the ARRA, Regional Extension Centers will be established and may qualify for funding under ARRA to provide technical assistance and disseminate best practices and other information learned from the Health Information Technology Research Center to aid healthcare providers with the adoption of health information technology.

Regional Health Information Organization (RHIO): A health information organization that brings together healthcare stakeholders within a defined geographic area and governs health information exchange among them for the purpose of improving health and care in that community.

State-Designated Entities (SDEs): As defined in the ARRA, State-Designated Entities (SDEs) may be designated by a state as eligible to receive grants under Section 3013 of the ARRA. To qualify as an SDE, an entity must be a not-for-profit entity with broad stakeholder representation on its governing board; demonstrate that one of its principal goals is to use information technology to improve healthcare quality and efficiency through the authorized and secure electronic exchange and use of health information; adopt nondiscrimination and conflict of interest policies that demonstrate a commitment to open, fair, and nondiscriminatory participation by stakeholders; and conform to other requirements as specified by HHS.

Statewide Collaboration Process: The multi-stakeholder deliberative process convened by HIP

TN to develop and adopt technical, business and legal rules that will govern HIE in Tennessee.

Statewide Policy Guidance: The technical, business and legal rules that govern HIE in Tennessee as developed through the Statewide Collaboration Process, adopted by the board of HIP TN and approved pursuant to the contractual relationship between HIP TN and the State.

Security: The Health Insurance Portability and Accountability Act Security rule defines "Security or Security measures" as "encompass[ing] all of the administrative, physical, and technical safeguards in an information system."

TennCare: The Bureau of TennCare, Tennessee's state Medicaid agency.

U.S. Department of Health and Human Services (HHS): The federal government agency responsible for protecting the health of all Americans and providing essential human services. HHS, through CMS, administers the Medicare (health insurance for elderly and disabled Americans) and Medicaid (health insurance for low-income people) programs, among others.

Appendix B: Letters of Endorsement and Approval of Plans

STATE OF TENNESSEE
DEPARTMENT OF HEALTH
CORDELL HULL BLDG.
425 5TH AVENUE NORTH
NASHVILLE TENNESSEE 37243

PHIL BREDESEN
GOVERNOR

SUSAN R. COOPER, MSN, RN
COMMISSIONER

May 19, 2010

David Blumenthal MD, MPP
National Coordinator for Health Information Technology
Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, DC _20201

Dear Dr. Blumenthal:

The Tennessee Department of Health wishes to express our support for the approach embodied in Tennessee's Health Information Exchange (HIE) Strategic and Operational Plans. We are particularly supportive of the view that while the technology is a critical tool, the primary focus is not technology itself, but improving health. We believe the Tennessee's State HIE Strategic and Operational Plans are based on a sound understanding of how to achieve these goals in our state's environment.

Tennessee has made significant progress in advancing the exchange of electronic health information. The focus on creating a framework for a public-private collaborative and establishing a secure statewide HIE infrastructure for healthcare providers, as well as more specifically, increasing the adoption of electronic prescribing and bringing together regional health information initiatives are all bearing real results. Tennessee has received national recognition for its e-health leadership, its regional health initiatives and for its many forward-thinking healthcare stakeholders.

Key staff from the Department of Health have been deeply involved with the development of both the State HIE Strategic and Operational Plans, alongside the other stakeholders.

The Tennessee Department of Health has great confidence in Tennessee's ability to accomplish its mission and goal in creating an interoperable, statewide HIE. We encourage you to approve the operational plan so that Tennessee can move from the planning phase to the implementation phase of advancing statewide HIE.

Best regards,

Susan R. Cooper MSN, RN

Susan R. Cooper, MSN, RN
Commissioner

Health Information Partnership for Tennessee

State HIE Strategic and Operational Plan Reviewers

The State HIE Strategic and Operational Plans were developed with guidance and review by the HIP TN Board, the HIP TN Operational Council, and the HIP TN workgroups.

In signing this letter of support, the HIP TN Board members endorse the plans submitted to the Department of Health and Human Services, Office of the National Coordinator for Health Information Technology.

On behalf of the HIP TN Board, Chairman of the Board Robert Gordon notes the approval by the full HIP TN Board for the strategic and operational plans, as indicated by his signature below.

Robert S. Gordon

Chairman of the Board
Health Information Partnership for Tennessee

HIP TN Board Members

- **Patrick Willard**, Associate State Director, Advocacy AARP of Tennessee
- **E. Douglas Varney**, Chairman of the Board, CareSpark, Inc.
- **Clifton Meador**, Board Member, Middle Tennessee eHealth Connect
- **Robert H. McLaughlin, MD**, Senior Medical Director, CIGNA Healthcare
- **Robert J. Mandel, MD**, Senior Vice President of Health Care Services, Blue Cross, Blue Shield of Tennessee
- **David Sensibaugh**, Director of Integrated Health, Eastman Chemical Company
- **Reginald W. Coopwood, MD, FACS**, Chief Executive Officer, Regional Medical Center, Memphis, TN
- **BW Ruffner, MD**, President, Tennessee Medical Association
- **Dawn Fitzgerald**, Chief Executive Office, QSource
- **Diane Pace**, Family Nurse Practitioner, University of Tennessee Health Science Center College of Nursing
- **Kathy Wood-Dobbins**, Chief Executive Officer, Tennessee Primary Care Association
- **Richard H. Sain, Pharm. D.**, President, Reeves-Sain Drugstore

STATE OF TENNESSEE
DEPARTMENT OF FINANCE AND ADMINISTRATION
OFFICE OF eHEALTH INITIATIVES
310 Great Circle Road, 4th Floor
Nashville, Tennessee 37243-0287
Phone (615) 687-4945 Fax (615) 532-2849

DAVE GOETZ
COMMISSIONER

WILL RICE
EXECUTIVE DIRECTOR

May, 28, 2010

David Blumenthal MD, MPP
National Coordinator for Health Information Technology
Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, DC 20201

Dear Dr. Blumenthal,

The State of Tennessee Internal Health Council (IHC) wishes to express our support for the approach embodied in Tennessee's Health Information Exchange (HIE) Strategic and Operational Plans.

The IHC includes cabinet members/senior management from multiple state departments, agencies and divisions involved with health information technology (HIT) and/or the electronic exchange of health information[1]. The IHC develops guidance and policies arising from work group analysis and recommendations, reviews and approves internal and external planning documents related to HIT or health information exchange (HIE), and establishes priorities for state investments in HIE or HIT.

In addition to the IHC itself, the wider IHC Forum has been established to include a broad representation of internal stakeholders, many of whom serve on the Health Information Partnership of Tennessee (HIP TN) Operational Council, HIP TN work groups and/or IHC work groups. Continuing a well established collaboration between state government and vital external stakeholders, the State of Tennessee, key state staff members from the various IHC agencies have been deeply involved with the development of both the State HIE Strategic and Operational Plans alongside the other stakeholders represented on the HIP TN Governing Board.

Tennessee has made significant progress in advancing the exchange of electronic health information. Tennessee has received national recognition for its e-health leadership, its regional health initiatives and for its many forward-thinking healthcare stakeholders. The Internal Health Council shares the view that while the technology is a critical tool, the primary focus is not technology itself, but improving health. We believe the Tennessee's State HIE Strategic and Operational Plans are based on a sound understanding of how to achieve these goals in our state's environment.

We the undersigned have great confidence in Tennessee's ability to accomplish its mission and goal in creating an interoperable, statewide HIE. We encourage you to approve the operational plan so that Tennessee can move from the planning phase to the implementation phase of advancing statewide HIE.

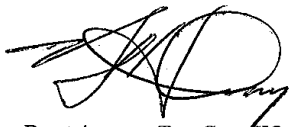
[1] Tennessee Departments of Children's Services, Corrections, Education, Finance & Administration, Health, Human Services, Labor and Workforce Development, Mental Health and Developmental Disabilities, and the Bureau of TennCare, the Division of Intellectual Disabilities Support, the Benefits Administration, the Health Planning Division, the Office of eHealth, the Office of Information Resources, and the Governor's Office of Children's Care Coordination.

State HIE Strategic and Operational Plan Reviewers

The State HIE Strategic and Operational Plans were developed with guidance and review by the Internal Health Council (IHC) and the IHC Wider Forum

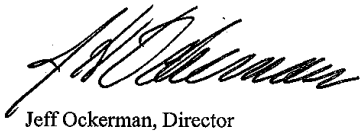
In signing this letter of support, the IHC steering committee members, on behalf of the IHC, endorse the plans submitted to the Department of Health and Human Services, Office of the National Coordinator for Health Information Technology.

Darin Gordon TennCare Director
TN Bureau of TennCare

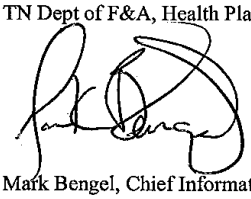


Brent Antony, TennCare CIO
TN Bureau of TennCare

Dave Goetz, Commissioner
TN Dept of Finance & Administration



Jeff Ockerman, Director
TN Dept of F&A, Health Planning



Mark Bengel, Chief Information Officer
TN Office of Information Resources

Veronica Gunn, Chief Medical Officer
TN Dept of Health

STATE OF TENNESSEE
BUREAU OF TENNCARE
310 Great Circle Road
NASHVILLE, TENNESSEE 37243

June 1, 2010

David Blumenthal MD, MPP
National Coordinator for Health Information Technology
Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, DC 20201

Dear Dr. Blumenthal,

The Tennessee Bureau of TennCare wishes to express our support for the approach embodied in Tennessee's Health Information Exchange (HIE) Strategic and Operational Plans. The statewide exchange of health information is a necessity for the Tennessee Bureau of TennCare to effectively serve those who are currently enrolled in TennCare, and to be prepared to serve those who will be joining the program in 2014 under the provisions of the Affordable Care Act.

Tennessee has made significant progress in advancing the exchange of electronic health information. The focus on creating a framework for a public-private collaborative and establishing a secure statewide Health Information Exchange (HIE) infrastructure for healthcare providers, as well as more specifically, increasing the adoption of electronic prescribing and bringing together regional health information initiatives are all bearing real results. Tennessee has received national recognition for its e-health leadership, its regional health initiatives and for its many forward-thinking healthcare stakeholders.

Key staff from the TennCare Bureau have been deeply involved with the development of both the State HIE Strategic and Operational Plans alongside the other stakeholders. TennCare shares the view that while the technology is a critical tool, the primary focus is not technology itself, but improving health. We believe the Tennessee's State HIE Strategic and Operational Plans are based on a sound understanding of how to achieve these goals in our state's environment.

The TennCare Bureau has great confidence in Tennessee's ability to accomplish its mission and goal in creating an interoperable, statewide HIE. We encourage you to approve the operational plan so that Tennessee can move from the planning phase to the implementation phase of advancing statewide HIE.

Sincerely,

Darin J. Gordon,
Director

Appendix C: HIP TN Charter and By-Laws

Secretary of State
Division of Business Services
312 Rosa L. Parks Avenue
6th Floor, William R. Snodgrass Tower
Nashville, Tennessee 37243

DATE: 07/31/09
REQUEST NUMBER: 6576-2752
TELEPHONE CONTACT: (615) 741-2286
FILE DATE/TIME: 07/31/09 0924
EFFECTIVE DATE/TIME: 07/31/09 0924
CONTROL NUMBER: 0607259

TO:
HEALTH INFORMATION PARTNERSHIP FOR TENN
708 E. WATAUGA AVE

JOHNSON CITY, TN 37601

RE:
HEALTH INFORMATION PARTNERSHIP FOR TENNESSEE
CHARTER - NONPROFIT

CONGRATULATIONS UPON THE INCORPORATION OF THE ABOVE ENTITY IN THE STATE OF TENNESSEE, WHICH IS EFFECTIVE AS INDICATED.

A CORPORATION ANNUAL REPORT MUST BE FILED WITH THE SECRETARY OF STATE ON OR BEFORE THE FIRST DAY OF THE FOURTH MONTH FOLLOWING THE CLOSE OF THE CORPORATION'S FISCAL YEAR. ONCE THE FISCAL YEAR HAS BEEN ESTABLISHED, PLEASE PROVIDE THIS OFFICE WITH THE WRITTEN NOTIFICATION. THIS OFFICE WILL MAIL THE REPORT DURING THE LAST MONTH OF SAID FISCAL YEAR TO THE CORPORATION AT THE ADDRESS OF ITS PRINCIPAL OFFICE OR TO A MAILING ADDRESS PROVIDED TO THIS OFFICE IN WRITING. FAILURE TO FILE THIS REPORT OR TO MAINTAIN A REGISTERED AGENT AND OFFICE WILL SUBJECT THE CORPORATION TO ADMINISTRATIVE DISSOLUTION.

WHEN CORRESPONDING WITH THIS OFFICE OR SUBMITTING DOCUMENTS FOR FILING, PLEASE REFER TO THE CORPORATION CONTROL NUMBER GIVEN ABOVE. PLEASE BE ADVISED THAT THIS DOCUMENT MUST ALSO BE FILED IN THE OFFICE OF THE REGISTER OF DEEDS IN THE COUNTY WHEREIN A CORPORATION HAS ITS PRINCIPAL OFFICE IF SUCH PRINCIPAL OFFICE IS IN TENNESSEE.

FOR: CHARTER - NONPROFIT ON DATE: 07/31/09

		FEES
FROM:	RECEIVED:	$100.00 $0.00
DEPT OF FINANCE & ADMIN (20 TH FL TN TWR		
TENNESSEE TOWER	TOTAL PAYMENT RECEIVED:	$100.00
20TH FLOOR		
NASHVILLE, TN 37219-0000	RECEIPT NUMBER:	00004653999
	ACCOUNT NUMBER:	00308363

SS-4458

TRE HARGETT
SECRETARY OF STATE

FILED
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2009 JUL 31 AM 9:24
THE HARGETT
SECRETARY OF STATE
9576.2752

CHARTER
OF
HEALTH INFORMATION PARTNERSHIP FOR TENNESSEE

The undersigned, acting as the incorporator of a corporation under the Tennessee Nonprofit Corporation Act (Tennessee Code Annotated §48-51-101, *et seq.*) adopts the following Charter for such corporation:

1. The name of the corporation is:

   Health Information Partnership For Tennessee

2. The corporation is: **a public benefit corporation**.

3. The corporation's initial registered office and agent are:

   708 E. Watauga Ave.
   Johnson City, TN 37601
   Washington County

   Name of initial registered agent: **Randall E. Sermons**

4. The name and address of the incorporator is:

   Randall E. Sermons, Attorney at Law
   708 E. Watauga Ave.
   Johnson City, TN 37601
   Washington County

5. The street address of the initial principal office of the corporation is:

   708 E. Watauga Ave.
   Johnson City, TN 37601

6. The corporation is: **not for profit**.

7. The corporation: **will not have members**.

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SECRETARY OF STATE

8. **The corporation shall exist perpetually** unless and until dissolved according to law and in compliance with the corporation's bylaws then existing.

9. The corporation is organized for the purpose of improving the health of people served in Tennessee using a public-private framework to coordinate and empower the sharing of appropriate health information through local and regional Health Information Exchanges, as well as in areas not yet covered by an exchange thereby improving quality, coordination of care, cost efficiency and public health. In so doing, the corporation shall operate exclusively for charitable, educational and scientific purposes including the making of distributions to organizations that qualify as exempt organizations under Section 501(c)(3) of the Internal Revenue Code, all within the meaning of Section 501(c)(3) of the Internal Revenue Code, or the corresponding section of any future federal tax code.

10. No part of the net earnings of the corporation shall inure to the benefit of, or be distributable to its members, trustees, officers, or other private persons, except that the corporation shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the purposes set forth in Item 9 hereof. No substantial part of the activities of the corporation shall be the carrying on of propaganda, or otherwise attempting to influence legislation, and the corporation shall not participate in, or intervene in (including the publishing or distribution of statements) any political campaign on behalf of, or in opposition to, any candidate for public office. Notwithstanding any other provision of these articles, the corporation shall not carry on any other activities not permitted to be carried on (a) by a corporation exempt from

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SECRETARY OF STATE

federal income tax under Section 501(c)(3) of the Internal Revenue Code,(or the corresponding section of any future federal tax code), or (b) by a corporation, contributions to which are deductible under Section 170(c)(2) of the Internal Revenue Code, or the corresponding section of any future federal tax code.

5576.2754

11. Upon dissolution of the corporation, assets shall be distributed for one or more exempt purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code, or the corresponding section of any future federal tax code, or shall be distributed to the federal government, or to a state or local government, for a public purpose. Any such assets not so disposed of shall be disposed of by a Court of competent jurisdiction of the county in which the principal office of the corporation is then located, exclusively for such purposes or to such organization or organizations, as said Court shall determine, which are organized and operated exclusively for such purposes.

12. To the extent allowed by the laws of the State of Tennessee, no present or future director of the corporation (or his or her estate, heirs and personal representatives) shall be liable to the corporation for monetary damages for breach of fiduciary duty as a director of the corporation. Any liability of a director (or his or her estate, heirs and personal representatives) shall be eliminated or limited to the fullest extent allowed by the laws of the State of Tennessee, as may hereafter be adopted or amended.

13. With respect to claims or liabilities arising out of service as a director or officer of the corporation, the corporation shall indemnify and advance expenses to each present and future director and officer (and his or her estate, heirs and personal representatives) to the fullest extent allowed by the

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SECRETARY OF STATE

laws of the State of Tennessee, both as now in effect and as hereafter adopted or amended.

In witness whereof, I have hereunto subscribed my name this 22nd day of July, 2009,

Randall E. Sermons, Attorney at Law

9529-2355

HEALTH INFORMATION PARTNERSHIP FOR TENNESSEE

CORPORATE BYLAWS

Table of Contents

HEALTH INFORMATION PARTNERSHIP FOR TENNESSEE
CORPORATE BYLAWS

I. Definitions

The following terms, when capitalized in these Bylaws, have the following meanings:

A. Act
Act shall mean the Tennessee Nonprofit Corporation Act as may be amended from time to time as well as any successor act.

B. Board
Board shall mean the Board of Directors of the Corporation.

C. Code
Code shall mean the Internal Revenue Code of 1986 or any successor Internal Revenue Code.

D. Corporation
Corporation shall mean Health Information Partnership For Tennessee.

II. General Provisions

A. Name of the Corporation
The name of the corporation shall be Health Information Partnership For Tennessee.

B. Principal Office
The principal office of the Corporation in the State of Tennessee shall be located at 708 E. Watauga Ave., Johnson City, Tennessee, 37601, or at such other place as shall be lawfully designated by the Board. The Corporation may have such other offices, either within or without the State of Tennessee, as the Board may designate or as the affairs of the Corporation may require from time to time.

C. No Members
The Corporation shall have no members. The Board may take any action which is permitted or required to be taken by members of a not-for-profit corporation under Tennessee law by the affirmative vote of a majority of the directors then in service, without the necessity of any prior action by the Board which would have otherwise been required by law for such action if there were members entitled to vote on such action.

III. Purposes

A. Purpose
The corporation is organized for the purpose of improving the health of people served in Tennessee using a public-private framework to coordinate and empower the sharing of appropriate health information through local and regional Health Information Exchanges, as well as in areas not yet covered by an exchange thereby improving quality, coordination of care, cost efficiency and public health. In so doing, the Corporation shall operate exclusively for charitable, educational and scientific purposes including the making of distributions to organizations that qualify as exempt organizations under Section 501(c)(3) of the Internal Revenue Code, all within the meaning of Section 501(c)(3) of the Code.

B. Powers
This Corporation shall have all such general and special powers as are authorized to non-profit corporations by the Act. The corporation shall neither have nor exercise any power, nor shall it engage directly or indirectly in any activity that would invalidate its status (i) as a corporation which is exempt from federal income taxation as an organization described in Section 501(c)(3) of the Code, or (ii) as a corporation contributions to which are deductible under Section 170(c)(2) of the Code.

C. Prohibition on the Inurement of Assets and Income to Private Persons
The corporation is not organized for pecuniary profit and shall not have any capital stock. No part of its net earnings or of its principal shall inure to the benefit of any officer or director of the corporation, or any other individual, partnership or corporation, but reimbursements for expenditures or the payment of reasonable compensation for services rendered shall not be deemed to be a distribution of earnings or principal.

D. Dissolution
If this Corporation is dissolved or its legal existence terminated, either voluntarily or involuntarily, or upon final liquidation of the Corporation, all of its assets shall be distributed for one or more exempt purposes within the meaning of Section 501(c)(3) of Code, or shall be distributed to the federal government, or to a state or local government, for a public purpose. Any such assets not so disposed of shall be disposed of by a Court of competent jurisdiction of the county in which the principal office of the corporation is then located, exclusively for such purposes or to such organization or organizations, as said Court shall determine, which are organized and operated exclusively for such purposes.

E. Tax Exempt Status
It is intended that the Corporation shall have and continue to have the status of a corporation which is exempt from federal income tax under Section 501(a) of the Code as an organization described in Section 501(c)(3) of such Code, and to which contributions are deductible under Section 170(c)(2) and 2055(a)(2) of the Code which is other than a private foundation as defined in Section 509(A) of the Code. The Articles of Incorporation and these Bylaws shall be construed accordingly, and all powers and activities shall be limited accordingly. However, nothing herein shall be construed to prevent the Corporation from making an election under Section 501(h) of the Code.

IV. Board of Directors

A. Governing Authority
The affairs of the Corporation shall be governed by the Board of Directors to be elected from time to time as stated herein.

B. Composition
The Board shall be composed of not more than fourteen voting directors. At all times the Board shall include, at a minimum, seven directors where one of each represents the following stakeholder groups, without overlap:

1. *Patients*
There shall be at least one representative from among the population served by health care providers in the State of Tennessee.

2. *Health Information Exchanges*
There shall be at least one representative from each of CareSpark, Inc. and Mid-South eHealth Alliance.

3. *Health Insurers*
There shall be at least two representatives from those entities that contract to provide health insurance coverage to citizens of the State of Tennessee, such as insurance companies, health maintenance organizations and nonprofit hospital and medical service corporations.

4. *Self Insured Employer*
There shall be at least one representative from among those businesses in the State of Tennessee offering health insurance to its employees through a self-funded health benefit plan.

5. *Hospital Industry*
There shall be at least one representative from among hospitals providing services in the State of Tennessee.

6. *Physicians*
There shall be at least one representative from among the physicians providing services in the State of Tennessee.

7. *Pharmacies*
   There shall be at least one representative from the pharmacy industry serving Tennesseans.

C. Ex-Officio Members of the Board

1. *Executive Director*
   The Executive Director of the Corporation shall be an Ex-Officio non-voting member of the Board.

2. *Additional*
   In addition to those directors listed in Section IV.B and the Ex-Officio members listed in this Section IV.C, the Board is authorized to elect Ex-Officio members of the Board to serve without vote. The total number of Ex-Officio members shall be determined by the Board. Ex-Officio members shall serve one year terms and may be reappointed with no lapse in service. Ex-Officio members serve at the pleasure of the Board.

D. Term

Except for the term of Ex-Officio members as set forth in Section IV.C, the directors shall be divided as equally as possible into three classes consisting of staggered terms.

1. *Establishment of Staggered Terms*
   After the initial Board which shall serve one year, directors shall be elected for terms of one, two, or three years. After serving a one or two year term, an initial director may serve two consecutive, three year terms. After serving a three year term, an initial director may serve one more consecutive three year term. In either case a retiring director may be eligible for reelection to the Board after one year.

2. *Ongoing*
   A director may serve two consecutive, three year terms. A retiring director will not be eligible for reelection to the Board for a period of one year, except for those instances where the immediate past Chair may remain on the board for an additional year for the good of the Corporation.

E. Election of Directors

1. *Nominating Committee*
   At least forty-five (45) days before the annual meeting held pursuant to Section VI.B, the Chairman shall submit a slate of nominees to the Board for membership on the nominating committee. The Board shall elect three (3) directors to serve as the nominating committee whose service shall be for a period of one (1) year. The nominating committee shall make nominations for individuals to serve as directors.

2. *Recommendations for Nominees*
   The nominating committee may request the Health Information Exchanges to recommend individuals to serve in a representative capacity on the Board. With regard to other director positions, the nominating committee may consult with, or request recommendations from, the Tennessee Hospital Association, the Tennessee Medical Association, the Tennessee Pharmacists Association or any other association or organization of institutions, organizations or individuals representative of the various categories of directors as outlined in Section IV.B

3. *Election*
   Election of directors shall take place at the annual meeting of the Board. Each director shall be given a list of the nominees at least ten (10) days prior to the annual meeting. Each director shall be entitled to one (1) vote for each director's position to be filled and the result will be determined by a vote equaling the number of the majority of the directors then in service.

F. Resignation

Any director may resign at any time by written notice delivered to the Chairman, Secretary, or Board at the principal office of the Corporation. Any such resignation shall take effect on the date of receipt of such notice or at any later time specified therein, and the acceptance of the resignation shall not be necessary to make it effective.

G. Attendance Expectations
Directors are expected to attend all meetings of the Board whether regular or specially called meetings, either in person or by electronic means as provided in these Bylaws. Directors who miss or who are not able to attend three consecutive Board meetings or a minimum of at least three-fourths of all Board Meetings during a 12-month period are subject to removal from the Board.

H. Vacancies
Vacancies occurring on the Board by death, resignation, refusal to serve, or otherwise, shall be filled for the unexpired term by election of one or more substitute directors by the remaining directors. If the directors remaining in office constitute less than a quorum of the Board, they may fill the vacancy by an affirmative vote of a majority of the directors then in service at any duly called regular or special meeting. Any substitute directors shall be representative of the same stakeholder group as the director creating the vacancy.

I. Conflict of Interest Policy
The Board shall adopt a comprehensive conflict of interest policy.

J. Compensation
Directors shall not receive any compensation for their services as directors, but the Board may, by resolution, authorize reimbursement of reasonable expenses incurred in the performance of their duties. Such authorization may prescribe the procedure for approval and payment of such expenses by designated officers of the Corporation.

K. Indemnification
The Corporation shall indemnify officers, directors and other persons to the fullest extent authorized by and in accordance with § 48-58-501 et seq. of the Tennessee Code Annotated.

V. Officers

A. Positions; Election
The officers of the Board shall be a Chairman, a Vice Chairman, a Secretary, and a Treasurer (the "Board Officers"). Each officer shall serve a one year term and be eligible for re-election during their tenure on the Board. The Board officers shall be chosen at the annual meeting of the Board or at such other duly constituted meeting as decided upon by the Board by the affirmative vote of a majority of directors then in service. Other than the founding Chairman, only directors who have served at least one (1) full year on the Board of directors shall be eligible for the office of Chairman. The Corporation shall also have such staff officers as may be determined from time to time, including but not limited to an Executive Director.

B. Resignation; Removal
Any Board officer may resign his or her office at any time by giving written notice to the Board. Any such resignation shall take effect on the date of the receipt of such notice or at any later time specified therein. Unless otherwise specified therein, the acceptance of such resignation shall not be necessary to make it effective. Any Board Officer may be removed from office at any time, with or without cause, by a two-thirds (2/3) vote of the directors then in office.

C. Vacancy
In the event of a vacancy in any office, the vacancy may be filled by the affirmative vote of a majority of the directors then in service.

D. Duties

1. *Chairman*
The Chairman shall preside at all meetings of the Board, shall have the general powers and duties usually vested in the office of the Chairman, and shall have such other powers and duties as may be prescribed by the Board. The Chairman shall, subject to the control of the directors, have general supervision, direction, and control of the affairs of the Corporation.

2. *Vice Chairman*
In the absence or disability of the Chairman, the Vice Chairman shall, for the period of such absence or disability, perform all the duties of the Chairman, and shall when so acting have all

of the powers of and be subject to all the restrictions upon the Chairman. The Vice Chairman shall have such other powers and perform such other duties as from time to time may be prescribed for him or her by the Board.

3. *Secretary*
The Secretary shall keep, or cause to be kept, a record of the proceedings of the meetings of the Board. The Secretary shall perform the duties of the Chairman in the absence or disability of both the Chairman and the Vice Chairman, for the period of such absence or disability, and when so acting shall have all of the powers of and be subject to all the restrictions upon the Chairman. The Secretary shall also have such other powers and perform such other duties as may be prescribed by the Board.

4. *Treasurer*
The Treasurer shall keep and maintain, or cause to be kept and maintained, adequate and correct accounts of the properties and financial business transactions of the Corporation. The Treasurer shall have such other powers and perform such other duties as may be prescribed by the Board.

5. *Executive Director*
The Executive Director of the Corporation shall be selected, employed, and supervised by the Board, which shall determine the terms of his or her employment. The Executive Director shall carry out the purposes of the Corporation under the direction of the Board, and shall be responsible for the day-to-day administration and supervision of the other employees of the Corporation.

VI. Meetings of the Board

A. Place
The meetings of the Board shall be held at the principal office of the Corporation or at any place within the United States that the Board may from time to time designate.

B. Annual Meeting
An annual meeting of the Board shall be held within four months of the close of the fiscal year each year, or at such other time as designated by the Chair, provided that if the annual meeting is to be held on a date other than the day listed above, the notice of the meeting shall give the date, time and place and designate it as the annual meeting.

C. Regular and Special Meetings
Regular meetings of the Board shall be held at the discretion of the Board. Special meetings of the Board may be held whenever called by the Chair, or by a majority of the directors then in service. Special meetings of the Board shall be held at such place either within or without the State of Tennessee, as shall be stated in the call of the meeting. It shall be the prerogative of the Board, on the call of the Chairman or on a duly approved motion of directors in attendance, to enter executive session to consider confidential matters.

D. Meetings by Electronic Communication
The directors are authorized to participate in any regular or special meeting by, or conduct the meeting through the use of, any electronic means of communication by which all directors participating may simultaneously hear each other during the meeting. A director participating by this means shall be deemed present in person at the meeting.

E. Notice of Meetings
The Secretary shall give notice to each director of each annual, regular or special meeting by mailing the same at least ten (10) days before the meeting to his/her address as shown by the records of the Corporation or by e-mail or faxing the same not less than ten (10) days before the meeting, which notice shall state the time and place of the meeting, including agenda items, and notification of actions expected to be taken. Attendance at an annual, regular or special meeting by a director shall constitute waiver of notice with regard to the meeting attended except where the director objects at the outset of the meeting to the transaction of any business because the meeting is not lawfully called or convened.

F. Quorum
A simple majority of the directors then in service shall constitute a quorum for the purpose of a meeting. Once a quorum is present to organize the meeting it shall continue in effect notwithstanding the subsequent withdrawal of any of those present unless the status of a quorum is questioned by a director.

G. Voting
Except for those items specifically enumerated below requiring a supermajority, any action taken by the Board must be affirmed by a number constituting a majority of directors at a meeting where a quorum has been established. The following items require the approval of seventy-five percent of directors then in service:

i. adopt policies or plans that affect the use, including the secondary use, of patient data;

ii. adopt policies or plans that would cause renegotiation of data sharing agreements between regional health information organizations and their data participants;

iii. amend, alter or repeal the Bylaws;

iv. amend or restate the articles of incorporation;

v. adopt a plan of merger or a plan of consolidation with another corporation;

vi. authorize the sale, lease, exchange or mortgage of all or substantially all of the property and assets of the Corporation;

vii. authorize the voluntary dissolution of the Corporation or revoke proceedings therefor;

viii. adopt a plan for the distribution of the assets of the Corporation;

ix. incurrence of debt;

x. capital expenditures in excess of $100,000.00

xi. making of an election under Section 501(h) of the Code.

VII. Committees

A. Creation of Committees
In addition to the standing committees created by these Bylaws, the Board may establish such committees as it deems necessary and appropriate for the conduct of the business and affairs of the Corporation. The members of such committees may be directors or other natural persons as determined by the Board or these Bylaws who shall serve at the pleasure of the Board. Each committee, whether standing or *ad hoc*, shall only have the powers and authority delegated to it by the Board provided that no committee shall be empowered or authorized to:

i. take any action requiring supermajority voting as listed in Section VI.G

ii. amend, alter or repeal any resolution of the Board unless specific authority for such action is granted to the committee by the Board;

iii. elect, appoint or remove any member of any such committee or any director or officer of the Corporation;

All Committees shall report any actions taken at the next Board meeting following the taking of such action for ratification. So far as applicable, the provisions of these Bylaws relating to the conduct of meetings of the Board shall govern meetings of a committee.

B. Executive Committee
There shall be an Executive Committee consisting of the Chairman, Vice Chairman, Secretary and Treasurer of the Board together with the Executive Director, *ex-officio* without vote. Additional directors may be appointed to the Executive Committee as desired by the Board. The Executive Committee is authorized to exercise all of the power of the Board to the extent consistent with the established policies of the Board and as permitted by law except as limited by Section VII.A.

C. Finance Committee
There shall be a Finance Committee consisting of the Treasurer of the Board, who shall chair the Finance Committee, not more than two additional directors from the Board, and the Executive Director. The duties of the Finance Committee shall be to review and recommend each year an annual budget for consideration and approval by the Board of directors and to consider and make recommendations to the Board concerning such other matters involving the financial resources of the Corporation as may from time to time arise.

D. Audit Committee
There shall be an Audit Committee consisting of three (3) directors from the Board, who shall be charged with the selection and oversight of an independent auditing firm to conduct an annual audit and to report the same to the Board, along with any other duties that may be assigned by the Board of directors.

VIII. Contracts, Checks, Deposits and Funds

A. Authorization
The Board of directors may authorize any officer or officers, agent or agents or Executive Committee, to enter into any contract or execute and deliver any instrument in the name of and on behalf of the Corporation, and such authority may be general or confined to specific instances. All checks, drafts, or other orders for the payment of money, notes, or other evidences of indebtedness issued in the name of the Corporation shall be signed by such officer or officers, agent or agents, of the Corporation and in such manner as shall from time to time be determined by resolution of the Board of directors.

B. Loan
No loan shall be contracted on behalf of the Corporation and no negotiable papers shall be issued in its name unless authorized by the vote of the Board. When authorized by the Board so to do, any officer or agent of the Corporation may effect approved loans and advances at any time for the Corporation from any bank, trust company or other institution or from any firm, Corporation or individual, and may make, execute and deliver promissory notes, bonds, or other certificates or evidence of indebtedness of the Corporation with respect thereto. Such authority shall be confined to specific instances. All bills, notes, checks, or other negotiable instruments of the Corporation shall be in the name of the Corporation and shall be signed by an officer of the Corporation or any other person duly authorized by the Board in such person's official representative capacity.

C. Deposits
All funds of the Corporation not otherwise employed shall be deposited from time to time to the credit of the Corporation in such banks, trust companies or other depositories as the Board may select, or as may be selected by any officer or officers, agent or agents of the Corporation to whom such power may from time to time be delegated by the Board. For the purpose of such deposits, the Chair, Secretary, Treasurer or any other officer or agent to whom such power may have been given shall have the power to deliver checks, drafts, and other orders for the payment of money.

IX. Miscellaneous

A. Seal
The Corporation shall have no seal.

B. Fiscal Year
The fiscal year of the Corporation shall end on the 30th day of September in each calendar year or otherwise as the Board may determine.

IN WITNESS WHEREOF, I hereby certify that these Bylaws were duly adopted by the Board of Directors for the Corporation on the ____ day of September, 2009, to be effective immediately,

_____
Secretary

REVISION HISTORY

Board Date	Comment
8/18/09	Original adopted by Board.
9/03/09	Director of TennCare added as a standing member of the Board
9/23/09	Remove employees of State of Tennessee from Board of Directors Delete list of initial Board Members

Appendix D: Workplan for Statewide HIE

Outline Number	Task Name	% Complete	Duration	Start	Finish
0	**HIE Tennessee**	**19%**	**1294 days?**	**Wed 9/2/09**	**Fri 8/8/14**
1	**Office of eHealth - Enterprise Services: Enable Meaningful Use**	**61%**	**293 days?**	**Mon 1/4/10**	**Thu 2/10/11**
1.1	**ONC Grant Administration**	**99%**	**259 days?**	**Fri 2/19/10**	**Thu 2/10/11**
1.1.1	Register and Notify ONC Project Officer	100%	0 days	Fri 2/19/10	Fri 2/19/10
1.1.2	Submit Budget for Implementation Phase to ONC	0%	0 days	Fri 6/4/10	Fri 6/4/10
1.1.3	**Submit Approach to Develop Operational Plan to ONC**	**100%**	**8 days**	**Thu 3/4/10**	**Mon 3/15/10**
1.1.4	**Submit Operational Plan**	**100%**	**35 days**	**Fri 4/16/10**	**Fri 6/4/10**
1.1.4.1	Identify HIT Coordinator for ONC	100%	0 days	Fri 4/16/10	Fri 4/16/10
1.1.4.2	**Write and submit 1st draft of Operational Plan to MHS**	**100%**	**28 days**	**Tue 4/27/10**	**Thu 6/3/10**
1.1.4.3	**Internal Review of Operational Plan**	**100%**	**12 days**	**Mon 5/3/10**	**Mon 5/17/10**
1.1.4.4	**Public Comment**	**100%**	**6 days**	**Mon 5/17/10**	**Mon 5/24/10**
1.1.4.5	**Revise Operational Plan for Submission**	**100%**	**4 days**	**Wed 5/26/10**	**Mon 5/31/10**
1.1.4.6	Milestone: Submit Operational Plan to ONC	100%	0 days	Fri 6/4/10	Fri 6/4/10
1.1.5	**Submit Updated Strategic Plan**	**100%**	**71 days**	**Mon 3/1/10**	**Fri 6/4/10**
1.1.5.1	Update Strategic Plan	100%	10 days	Mon 3/1/10	Fri 3/12/10
1.1.5.2	Review and Approve Strategic Plan	100%	36 days	Mon 3/15/10	Fri 4/30/10
1.1.5.3	Milestone: Submit Updated Strategic Plan to ONC	100%	0 days	Fri 6/4/10	Fri 6/4/10
1.1.6	**Quarterly Reports**	**0%**	**200 days**	**Sat 4/10/10**	**Mon 1/10/11**
1.1.7	**Annual Reports**	**0%**	**118 days?**	**Wed 9/1/10**	**Thu 2/10/11**
1.2	**Staffing**	**43%**	**158 days**	**Mon 1/4/10**	**Mon 8/9/10**
1.2.1	**Review Staffing Needs**	**100%**	**15 days**	**Mon 3/22/10**	**Fri 4/9/10**
1.2.2	**Recruit**	**0%**	**158 days**	**Mon 1/4/10**	**Mon 8/9/10**
1.2.2.1	Circulate Job Descriptions	0%	20 days	Mon 1/4/10	Fri 1/29/10
1.2.2.2	**Recruit and Hire**	**0%**	**128 days**	**Mon 2/15/10**	**Mon 8/9/10**
1.2.3	Milestone: Office of eHealth Staff is in place	0%	0 days	Mon 8/9/10	Mon 8/9/10
1.3	**Communication Plan**	**55%**	**220 days**	**Mon 2/22/10**	**Mon 12/20/10**
1.3.1	**Create Communication Plan - Synchronize Office of eHealth, TennCare, HipTN, and REC Communication Plans**	**81%**	**100 days**	**Mon 2/22/10**	**Wed 7/7/10**
1.3.1.1	**Develop eHealth Communication Plan**	**100%**	**0 days**	**Tue 2/23/10**	**Tue 2/23/10**
1.3.1.2	**Develop Coordinated Communications Matrices**	**81%**	**100 days**	**Mon 2/22/10**	**Wed 7/7/10**
1.3.1.3	Milestone: Communications Matrices (HIP TN, OeH, REC, TennCare) have been approved	0%	0 days	Wed 7/7/10	Wed 7/7/10
1.3.2	Manage and Execute Communication Plan	0%	120 days	Thu 7/8/10	Mon 12/20/10
2	**TennCare - Enterprise Services: Enable Meaningful Use**	**34%**	**403 days?**	**Wed 9/2/09**	**Fri 3/11/11**
2.1	**Staffing**	**99%**	**114 days**	**Fri 2/26/10**	**Mon 8/2/10**
2.1.1	Review Staffing Needs	100%	30 days	Fri 2/26/10	Thu 4/8/10
2.1.2	**Recruit**	**0%**	**82 days**	**Mon 4/12/10**	**Mon 8/2/10**

Outline Number	Task Name	% Complete	Duration	Start	Finish
2.9.4	Create Schedule	0%	40 days	Mon 6/14/10	Thu 8/5/10
2.9.5	Review and Approve Implementation Plan	0%	5 days	Fri 8/6/10	Thu 8/12/10
2.10	Milestone (Tentative): Submit Implementation Plan (IAPD) to CMS	0%	0 days	Mon 8/16/10	Mon 8/16/10
2.11	**Execute Planning and Implementation Activities**	**4%**	**255 days?**	**Wed 2/10/10**	**Tue 1/25/11**
2.11.1	**Implement Processes and Applications to Administer Incentive Payments**	**0%**	**1 day?**	**Wed 2/10/10**	**Wed 2/10/10**
2.11.2	Milestone: MU Incentive Processes and Systems Go-Live	0%	0 days	Mon 1/3/11	Mon 1/3/11
2.11.3	**Promote EHR Adoption and Implementation with TennCare Providers**	**4%**	**255 days?**	**Wed 2/10/10**	**Tue 1/25/11**
2.11.3.1	"Agregate" TennCare Providers	0%	150 days	Mon 7/5/10	Tue 1/25/11
2.11.3.2	Workforce Training	0%	150 days	Mon 7/5/10	Tue 1/25/11
2.11.3.3	**Implement Enterprise Services**	**6%**	**203 days?**	**Wed 2/10/10**	**Mon 11/15/10**
2.11.3.3.1	**Immunization Registry: Analysis and Procure**	**6%**	**200 days**	**Mon 2/15/10**	**Mon 11/15/10**
2.11.3.3.1.1	**Analysis and Procurement**	**23%**	**102 days**	**Mon 3/29/10**	**Thu 8/12/10**
2.11.3.3.1.2	**Build / Configure**	**0%**	**200 days**	**Mon 2/15/10**	**Mon 11/15/10**
2.11.3.3.1.3	Test	0%	6 days	Fri 8/20/10	Fri 8/27/10
2.11.3.3.1.4	Milestone: Immunization Registry Service Ready with Enhanced Capacity	0%	0 days	Fri 10/1/10	Fri 10/1/10
2.11.3.3.2	**Lab Services**	**100%**	**0 days**	**Wed 2/10/10**	**Wed 2/10/10**
2.11.3.3.2.1	Milestone: DOH Ready to Receive HL7 Messages	100%	0 days	Wed 2/10/10	Wed 2/10/10
2.11.3.3.3	**Medication Management**	**0%**	**126 days?**	**Wed 2/10/10**	**Fri 7/30/10**
2.11.3.3.3.1	**RFI**	**0%**	**71 days**	**Tue 4/27/10**	**Fri 7/30/10**
2.11.3.3.3.1.1	Create Medication Management RFI	0%	25 days	Tue 4/27/10	Fri 5/28/10
2.11.3.3.3.1.2	Milestone: Release Medication Management RFI to Vendor	0%	0 days	Mon 6/7/10	Mon 6/7/10
2.11.3.3.3.1.3	Review RFI Responses and Vendor Demonstrations	0%	10 days	Mon 6/28/10	Fri 7/9/10
2.11.3.3.3.1.4	Decide on Next Steps - input into IAPD	0%	15 days	Mon 7/12/10	Fri 7/30/10
2.11.3.3.3.2	**Create Ability to Access Patient Medication List via HIPTN Hub - TBD**	**0%**	**1 day?**	**Wed 2/10/10**	**Wed 2/10/10**
3	**HIP TN - Core and Value Added Services: Enable HIE**	**23%**	**1185 days**	**Tue 2/2/10**	**Fri 8/8/14**
3.1	**Establish Workgroups with RFP and Operations Plan Focus**	**100%**	**37 days**	**Wed 2/10/10**	**Fri 4/2/10**
3.2	**Prepare for Operations Plan Workshop**	**100%**	**80 days**	**Tue 2/2/10**	**Thu 5/20/10**
3.3	**Create and Submit RFP for All Core Services**	**52%**	**69 days**	**Thu 4/1/10**	**Fri 7/2/10**
3.3.1	Clinical WorkGroup	100%	11 days	Fri 4/30/10	Thu 5/13/10
3.3.2	**Technology WorkGroup**	**100%**	**32 days**	**Fri 4/2/10**	**Thu 5/13/10**
3.3.3	**Privacy and Security WorkGroup**	**51%**	**68 days**	**Fri 4/2/10**	**Fri 7/2/10**
3.3.4	**Sustainability WorkGroup**	**100%**	**32 days**	**Fri 4/2/10**	**Thu 5/13/10**
3.3.5	**Consumer Engagement WorkGroup**	**0%**	**56 days**	**Mon 4/12/10**	**Fri 6/25/10**
3.3.6	**Create / Review RFP**	**33%**	**64 days**	**Thu 4/1/10**	**Fri 6/25/10**
3.3.7	Milestone: RFP for Core and Value Added Services has been released to the Vendor Community	0%	0 days	Fri 6/25/10	Fri 6/25/10
3.4	**Recommend Vendor(s) for all Core Services**	**0%**	**56 days**	**Fri 7/2/10**	**Thu 9/16/10**
3.5	Sign Contract(s) with Core and Defined Value Added Services Vendor(s)	0%	0 days	Thu 9/16/10	Thu 9/16/10
3.6	Milestone: Start Core Services Implementation	0%	0 days	Thu 9/30/10	Thu 9/30/10
3.7	**Semi-Annual Meetings of All WorkGroups**	**0%**	**787 days**	**Mon 11/1/10**	**Fri 11/1/13**
3.8	**Implement Core Services**	**0%**	**1010 days**	**Thu 9/30/10**	**Fri 8/8/14**
4	**Regional Extension Centers: Adopt HIT**	**0%**	**512 days**	**Fri 3/19/10**	**Fri 2/24/12**
4.1	Milestone: Submit REC Operations Plan to ONC	100%	0 days	Fri 3/19/10	Fri 3/19/10
4.2	Milestone: Communications Plan has been Formalized	100%	0 days	Thu 4/8/10	Thu 4/8/10
4.3	Milestone: Start Educational Outreach and Recruitment of Targeted PCPs (Physicians can sign up for REC services)	100%	0 days	Sat 5/8/10	Sat 5/8/10
4.4	**Promote HIT Adoption and Participation in Existing HIOs (Governance Building)**	**0%**	**475 days**	**Sat 5/8/10**	**Fri 2/24/12**
4.5	**Workforce Training and Development**	**0%**	**475 days**	**Sat 5/8/10**	**Fri 2/24/12**

Appendix E: Workgroup Charters

HIP TN
Health Information Partnership for Tennessee

Clinical Workgroup Charter

Version 13.0

Purpose:	The Clinical Workgroup - representing the provider community - will: • Gather information about priorities for clinical improvement programs, plans and outcomes from stakeholders in order to facilitate communication, coordination and alignment of priorities and efforts, • Identify common data sets, nationally standardized quality metrics, necessary clinical data elements, nomenclature, format and presentation to support exchange of clinical information, improvements in clinical care delivery and sustainability to achieve goals set by HIP TN, • Identify core quality improvement areas in accordance with the State Health Plan process to target for feedback of performance information to providers and consumers to help them partner to deliver and get the care they need most • Engage regional providers in developing sustainable regional quality improvement infrastructure to help them use quality information and disseminate and implement best practices. • Define high-value/high priority uses and/or use cases for HIE • Identify barriers to adoption of HIT and HIE and suggest approaches to mitigate barriers, • Identify and disseminate best practices at the national, state, and regional levels. • Identify datasets, clinical workflow enhancing functionality, and analytics and reporting that facilitate disease management and allow participation in new models of care delivery, including Medical Home and Accountable Care Organizations.
Meeting Schedule:	The Clinical Workgroup will initially meet weekly or bi-weekly. Meeting frequency is subject to change based on need.
Scope and Boundaries:	The Clinical Workgroup will: • Gather information about priorities for clinical improvement programs, plans and outcomes from stakeholders-- including but not limited to CMS, State Health Plan, State Plan (State Strategic Plan + State Operations Plan), Regional Extension Center, HRSA, other local / regional initiatives, and other states' initiatives in order to facilitate communication, coordination and alignment of priorities and efforts, • Develop Use Cases that address transitions in care and referrals. At a minimum, the use cases will include the exchange of clinical information at the point of care throughout the state for primary care (adult and pediatric) ambulatory, acute care inpatient hospital settings, and emergency departments • Consider at all times the patient's perspective: o Does the patient understand the benefits and risks? o Does the patient desire information to be made exchanged? o What data is available at the point of care? o Who has access to the information and for what purpose? o • Work with the Consumer Workgroup to insure that clinical quality information fed back through the exchange is meaningful to consumers and helps them understand and partner with their physicians to get the care they need most. • Focus on data exchange between different legal entities, rather than

HIP TN
Health Information Partnership for Tennessee

Clinical Workgroup Charter

Version 13.0

Objectives and Goals:	• Identify the clinical priorities for HIP TN and create a coordination plan to incorporate these priorities into the overall HIP TN strategy and the State Plan (State Strategic Plan and State Operations Plan) and enable Meaningful Use, • Support HIP TN RFP process through the identification of clinical data elements to be exchanged to support patient care at the point of care.
Measures of Success:	*TBD as part of the planning and requirements documentation process, but need to tie into the Clinical priorities and goals*
Deliverables: Timeline for deliverables will be the "first" deliverable from the work group.	• List of Clinical Priorities for HIP TN and proposed measures for tracking progress, • Plan for coordination of HIP TN Clinical Priorities, State Strategic Plan, State Health Plan, Regional Extension Center priorities, and Meaningful Use requirements, • List of prioritized data elements for exchange through statewide HIE system that will support POC in the primary ambulatory care settings, acute care inpatient settings and emergency departments, including list of key primary care dashboards elements needed most to track and improve quality of care for clinical priority conditions at the point of care, • List of core quality metrics needed most for online feedback to primary care providers of regular registry patient panel reports.
Constraints:	• Prioritization of provider settings and locations (beyond what is stated above under scope) will be driven by the State Plan, but need to align with REC plan as well, • Meaningful Use and the stages for implementation will affect priorities, • Coordination with other state plans including but not limited to TennCare's plans to support Medication Management, Lab Translation, and access to registries.
Other related projects/initiatives that the Clinical Workgroup needs to coordinate with:	• State Planning initiatives that include TennCare Plans, eHealth plans for statewide HIE (Strategic Plan and Operations Plan), State Health Plan, Department of Health, Department of Mental Health, Department of Corrections, others TBD, • Meaningful Use requirements, • Regional Extension Centers, • Other workgroups, including those led and supported by HIP TN (e.g. P&S, Technical, Sustainability and Consumer).

Health Information Partnership for Tennessee

Privacy and Security Workgroup Charter

Version 13.0

Purpose:	The Privacy and Security Workgroup will: • Gather input from key stakeholders throughout the state, to inform and give feedback to the HIP TN Operations Council, Board and state officials, as appropriate, on matters related to privacy, confidentiality and security of PHI electronically exchanged, • Recommend to the HIP TN Operations Council and/or Board policies and processes that help to ensure the privacy, confidentiality and security of PHI electronically exchanged in Tennessee, consistent with the State Plan and all State and federal laws, rules, regulations and standards that may apply, • Participate in and contribute to the development and adoption of policies that ensure privacy, confidentiality and security of PHI electronically exchanged within and across the boundaries of Tennessee, • Identify and disseminate best practices at the national, state, and regional levels. • Recommend policies and processes to address and comply with patient/consumer rights related to how PHI is electronically accessed, used and disclosed
Meeting Schedule:	The Privacy and Security Workgroup will initially meet weekly or bi-weekly. Meeting frequency is subject to change based on need.

Scope and Boundaries:	The Privacy and Security Workgroup will:
	• Focus initially on the electronic exchange of PHI ***between*** legal organizations (including providers and RHIOs); **not** on electronic exchange within a single legal entity such as an Integrated Delivery Network (IDN),
	• Consider best practices concerning electronic exchange of PHI from the patient's perspective.
	  ○ Has the patient been informed of the benefits and risks?
	  ○ Does the patient desire PHI to be electronically exchanged?
	  ○ What data is available at the point of care?
	  ○ Who has access to the PHI and for what purpose?
	  ○ Does the patient have electronic access to their PHI?
	  ○ Can the patient get accounting of each disclosure of PHI shared with others?
	  ○ Has the patient been informed of their rights concerning electronic exchange of PHI?
	• Use the process defined by the state for policy adoption (Appendix A attached), work with State leaders to propose and support adoption of recommended policies,
	• Consider Meaningful Use, Minimum Necessary and Limited Data Set, and Breach requirements related to privacy and security,
	• Work within the State's defined priorities for addressing technical needs for providers throughout the state to exchange PHI electronically. The State will provide guidance on priorities and support to enable electronic exchange capabilities for providers in different locations (e.g. rural, urban, suburban), as well as those serving "vulnerable and underserved"[1] populations.
	• Consider that the electronic exchange of sensitive PHI (sexually transmitted diseases, minors, substance abuse, mental health, HIV status etc) requires a secondary level of protection

Privacy and Security Workgroup Charter

Version 13.0

Objectives and Goals:	• Make policy recommendations to the HIP TN Operations Council and/or Board regarding secure electronic exchange of PHI in a manner that protects privacy and confidentiality, • Coordinate with the Tennessee Regional Extension Center to increase provider awareness and capability to meet requirements, • Evaluate the HITRUST Common Security Framework and recommend to HIP TN Board this or other frameworks to accomplish the goals of the organization relating to privacy and security, • Support the development and implementation of privacy and security components of the State Operational Plan, • Throughout the RFP process, support HIP TN to identify and address technical requirements to protect Privacy and Security, including definition of criteria for evaluating each proposal submitted, • Provide input for development and execution of data sharing agreements to support the electronic exchange of PHI within and across the state boundaries.
Measures of Success:	The Privacy and Security Workgroup will be responsible for ensuring that privacy and security policies and template data sharing agreements are in place for participants in statewide electronic exchange of PHI.
Deliverables:	• Documentation of Privacy and Security policies designed to guide electronic exchange of PHI statewide, and enable Meaningful Use. • Evaluation of HITRUST Common Security Framework and recommendation to HIP TN board regarding adoption of HITRUST or other appropriate framework, • Document privacy and security infrastructure requirements to ensure privacy and security of PHI electronically exchanged within and across the state boundaries.
Constraints:	• Statewide policy – to the extent applicable in any given circumstance – shall be a condition of access to HIE related services supported by HIP TN, as well as any third party contracted by HIP TN to carry out the development, delivery or operation of HIE services, • Engagement and coordination with State of Tennessee's Internal Health Council and IHC Operations Council.
Other related projects/initiatives that the Privacy and Security Workgroup needs to coordinate with:	• State Planning initiatives that include TennCare Plans, eHealth plans for statewide HIE (Strategic Plan and Operations Plan), State Health Plan, Department of Health, Department of Mental Health, Department of Correction, others TBD, • Meaningful Use requirements, • Minimum Necessary • State Internal Health Council, • IHC Operations Council, • Other workgroups, including those led and supported by HIP TN (e.g. Technical, Clinical, Sustainability and Consumer). • Local and regional initiatives (i.e., MSeHA, CareSpark and the like)

Appendix A

Health Information Partnership for Tennessee

Privacy and Security Workgroup Charter

Version 13.0

Process for Adoption of Policies:

(Source: Grant Contract between HIP TN and State of Tennessee, effective October 1, 2009)

- Once an issue is identified, the Operations Council will pass the policy issue to the appropriate Work Group(s) for consideration and drafting of policy recommendations.
- Once the Work Group(s) has drafted the policy recommendation, it will be sent to the Operations Council for review and further vetting.
- If any revisions are required, the policy recommendation will go back to the appropriate Work Group(s) for revision based on the guidance from the Operations Council.
- Once the policy has been revised, the policy will be sent to the Operations Council for review.
- When the recommended policy has been fully vetted, the Operations Council will forward the recommended policy to the (HIP TN) Board for preliminary review.
- Once the (HIP TN) Board completes a preliminary review, it shall forward the policy recommendation to the State HIT Coordinator for consideration for adoption through the State's process.
- At the time of adoption by the State, the policy will be forwarded to the Board for final adoption and implementation steps as necessary.

Health Information Partnership for Tennessee

Sustainability Workgroup Charter

Version 12.1

Purpose:	The Sustainability Workgroup will define and recommend financial sustainability plans to support health information exchange activities throughout the state, beyond the initial start up funding.
Meeting Schedule:	The Sustainability Workgroup will meet on Friday afternoons from 12:00 to 1:30 pm CDT on a weekly basis. Meeting frequency is subject to change based on need.
Scope and Boundaries:	The Sustainability Workgroup will: • Develop a business plan based on a revenue stream wherein the private and public sectors pay for value resulting from exchange of health information, • Assess the options for startup and ongoing funding for health information exchange, • Work within the State's defined priorities for addressing technical needs for providers throughout the state to exchange health information electronically. The State will provide guidance on priorities and support to enable exchange capabilities for providers in different locations (e.g. rural, urban, suburban), as well as those serving "vulnerable and underserved"[1] populations.
Objectives and Goals:	• Develop a model for business and financial sustainability that includes governance details to support secure exchange of health information within the state and across state boundaries, • Develop a business plan for HIP TN sustainability supporting statewide HIE, • Support the State Plan (Strategic Plan and Operations Plans for statewide HIE), • Support the HIP TN RFP process to define and address the business requirements of infrastructure and services provided under contract to HIP TN.
Measures of Success:	The Sustainability Workgroup will be responsible for: • Ensuring that Health Information Exchange is supported statewide, as well as across state boundaries, • Focusing on the patient's perspective, • Final analysis must take place that lends itself to evaluation by the private and public sectors including serviceability, functionality and ROI, • The creation of a validated sustainable business plan for HIP TN.
Deliverables:	• Sustainable business model for HIP TN, regional exchanges, and overall statewide HIE.

[1] "Vulnerable" denotes high risk for healthcare problems. "Underserved" denotes populations that receive fewer healthcare services than required for actual or potential healthcare problems – JAMIA
Medically Underserved populations are those with economic barriers or cultural or linguistic access barriers to primary medical services – HRSA
There is considerable overlap between Vulnerable and Underserved but an individual may be vulnerable and not yet underserved – JAMIA
Source: http://jamia.bmj.com/content/11/6/448.full.pdf

Health Information Partnership for Tennessee

Sustainability Workgroup Charter

Version 12.1

Constraints:	• Balance the requirements of the ONC Cooperative Agreement with HIP TN business model, • The definition of meaningful use and the implementation stages, • State Strategic Plan and State Operational Plan for HIE within and across state boundaries, • Limited funding for the HIP TN initiative will be milestone-based as outlined in the Cooperative Agreement, • 501(c)(3) status may limit or constrain some opportunities for revenue generation.
Other related projects/initiatives that the Sustainability Workgroup needs to coordinate with:	• State Planning initiatives that include TennCare Plans, eHealth plans for statewide HIE (Strategic Plan and Operations Plan), State Health Plan, Department of Health, Department of Mental Health, Department of Corrections, others as defined and approved by Sustainability Workgroup, • Regional Extension Centers, • Other workgroups, including those led and supported by HIP TN (e.g. P&S, Clinical, Technology and Consumer).

Health Information Partnership for Tennessee

Technology Workgroup Charter

Version 13.0

Purpose:	The Technology Workgroup will: • Coordinate with existing efforts at the state and local level to define, recommend and support technical infrastructure, consistent with nationally recognized standards, which helps meet the goals set out in State's Cooperative Agreement with ONC, • Participate in state level planning processes for the purpose of enabling exchange of health information throughout the state, • Provide input on technology investments and implementations that will support exchange of health information both throughout the state, as well as across state boundaries, • Consider at all times the patient's perspective in providing the exchange of information to ultimately improve patient care, • Identify and disseminate best practices at the national, state and regional levels.
Meeting Schedule:	The Technology Workgroup will meet weekly.Meeting frequency is subject to change based on need.
Scope and Boundaries:	The Technology Workgroup will: • Work within the State's defined priorities for addressing technical needs for providers throughout the state to exchange health information electronically. The State will provide guidance on priorities and support to enable exchange capabilities for providers in different locations (e.g. rural, urban, suburban), as well as those serving "vulnerable and underserved"[1] populations, • Ensure that the Meaningful Use requirements for Eligible Providers and Eligible Hospitals serve as the foundation for the set of core services that will be developed and supported to enable exchange of information within the state and across state boundaries, • Work within the scope of the State's Cooperative Agreement with ONC, as well as the State Strategic and Operational Plans for statewide HIE, • Work with other HIP TN workgroups to ensure that technology requirements are in line with federal and state policies and standards, and then facilitate the RFP and vendor selection process to enable statewide HIE.
Objectives and Goals:	• Develop a technical infrastructure plan that is consistent with nationally-recognized standards, while maintaining practicality and cost effectiveness, • Develop a plan that will document services to be delivered in the short-, medium-, and long-term based on priority, • Support the State Plan (Strategic Plan and Operations Plans for statewide HIE), • Lead the RFP/vendor selection processes undertaken by HIP TN, • Define and manage the timeline for implementation related to technical development and services contracted by the organization, • Recommend products and refine technical processes as part of an ongoing evaluation of technical capabilities.

Health Information Partnership for Tennessee

Technology Workgroup Charter

Version 13.0

Measures of Success:	The Technology Workgroup will be responsible for ensuring that each vendor's product is evaluated against the requirements in the procurement process and that each selected vendor attests that their product can successfully meet the requirements.
Deliverables:	• Develop and manage the deliverable timeline, • Contribute to the Operational Plan for statewide HIE that identifies technical requirements, policies, and scope of services that support statewide Health Information Exchange, as well as the exchange of health information across state boundaries, as needed to support delivery of care, • RFP outlining technical requirements, policies, scope of services, and budget constraints that is delivered to potential vendors, • Vendor recommendations based upon RFP responses and workgroups' evaluation, • Development of a baseline implementation timeline.
Constraints:	• Limited time availability of workgroup members, • Balance goals with ONC Cooperative Agreement requirements, • State Strategic Plan and State Operational Plan for HIE within and across state boundaries, • Limited funding for the HIP TN initiative will be milestone-based as outlined in the Cooperative Agreement, • Consideration of requirements for state matching funds.
Other related projects/initiatives that the Technology Workgroup needs to coordinate with:	• State Planning initiatives that include TennCare Plans, eHealth plans for statewide HIE (Strategic Plan and Operations Plan), State Health Plan, Department of Health, Department of Mental Health, Department of Corrections, Others as defined and approved by Technology Workgroup, • Meaningful Use requirements, • Consider HIE technology developments across state boundaries, • Other workgroups, including those led and supported by HIP TN (e.g. P&S, Clinical, Sustainability and Consumer), • Broadband Activities as a result of ARRA Grants.

Appendix F: Tennessee Regional Health Information Profiles

CareSpark	Website: http://www.carespark.com

Project Summary and Objectives

Pioneering HIE across state lines, CareSpark serves an area in central Appalachia that includes 34 counties spanning east Tennessee and southwest Virginia. Their model is based on significant grassroots support from local healthcare providers, purchasers, technology companies and policymakers at state and national levels. In 2008, CareSpark launched their regional clinical HIE, and are now actively exchanging demographic and clinical data in a standards-based format. As one of only nine national recipients of the National Health Information Network (NHIN) contract for Trial Implementation, CareSpark has tested and demonstrated the ability to securely exchange demographic and clinical data, including a summary medical document that includes medications, allergies, problems, lab and imaging reports, immunizations and consumer consent directives. As of June 2009, CareSpark had approximately 200,000 patient records in system, 200 clinician users.

Key Stakeholders

Provider community includes:

- 18 hospitals
- 7 organizations operating 25 federally-qualified health clinics
- 3 community clinics serving the uninsured
- 3,000 physicians
- 25 radiology centers
- 18 laboratories
- 9 regional health departments, 2 state

CareSpark also includes local employers (Eastman Chemical Company) and payers. Key contact(s): Lisa Jenkins, Executive Director CareSpark

Technical Architecture, Approach and Current Status

CareSpark has committed to use modular components that are "plug and play" so that different organizations can use different systems to communicate about patients. CareSpark plans to further develop the infrastructure so that the system can also de-identify data for use in aggregate form to monitor health outcomes for the region and to develop targeted interventions that help improve regional health status.

Privacy and Security Framework

Access to patient information is determined by enrollment status. The enrollment system encourages participation by all patients and providers in the region while preserving individual autonomy. Enrollment is initially by provider enrollment of a patient. CareSpark's Master Patient Option Preference allows providers to enroll patients who have been notified (passive enrollment) or as the patient gives express consent for their records to be exchanged (active enrollment). The majority of provider organizations participating in CareSpark have elected "passive" enrollment of patients.

CareSpark	Website: http://www.carespark.com

Financing Model

Fair proportion of financial savings for all stakeholders: physician, patient, and purchasers (employers, taxpayers, insurers). Using a fee-based revenue model

- Contracts with insurers and employers (per member, per month fee for covered lives)
- Transaction fees for data providers (labs, hospitals, large practices)
- Service fees (to non-regional organizations requesting services from CareSpark)
- Contributions (cash and in-kind)

Funding as of April 2009: $562,000 for planning; $5.5 million for development, deployment and operations.

Use Cases	Data Types	Vendors
Continuity of Care Clinical Decision Support Public Health Consumer Empowerment Medication Management / Medication Reconciliation	CCD (summary document listing medications, allergies, problem list, lab / diagnostic reports, immunizations, other clinical information) Claims-based records HL7	CGI (lead integrator and open source development) • ActiveHealth (clinical decision support) • Anakam (two-factor authentication) • BCTI / Cisco (security) • Deliberare (security audit) • Holston Technology (Oracle database) • Initiate (MPI, provider directory) • Healthvision / LucentGlow (Cloverleaf interface) • Sun (web services tools) • TecAccess (508 compliance) • Wellogic (clinician portal)

Innovation Valley Health Information Network	Website: http://www.ivhin.org/	
Project Summary and Objectives IVhin, based in Knoxville, serves a 17-county area in east Tennessee including 1 million people; 2 thousand physicians; 4,500 hospital beds and 16 hospital systems. This regional health information organization began as a community initiative from Knoxville's four major health systems and the Technology 2020 development initiative. IVhin has most recently expanded their reach to area physician practices while administering a portion of the state's Physician Connectivity grant program. Next on IVhin's agenda is the rapid implementation of a community-wide HIE capability. Full deployment and/or integration with other HIE efforts in Tennessee is expected by the end of 2009.		
Key Stakeholders Four hospitals (Baptist Health System/Mercy Health Partners, Covenant Health, St. Mary's Health System/Mercy Health Partners, and University Health System) and a local public-private partnership (Technology 2020) have been foundational partners. Key contact(s): Mike Ward, the CIO of Covenant Health.		
Technical Architecture, Approach and Current Status IVhin's initial plans were to design and develop a repository of clinical information that could be provisioned to the point of care and could also be serve as a platform for clinical decision support and other analytics to drive care improvements. As of April 2009, radiology images are being exchanged amongst three hospital systems (11 to 12 hospitals).		
Privacy and Security Framework Initial framework has been developed, but will need to be updated once funding for implementation is secured.		
Financing Model The initial model, developed by the Patient Safety Institute, was to secure capital from the private sector. Owing to economic conditions, private sector equity hasn't been available, and as a result, IVhin has explored other sources of capital, including grants from the State of Tennessee.		
Use Cases Imaging	**Data Types** Radiology images	**Vendors** Initial vendor for the pilot demonstration was FCG-Patient Safety Institute. A new HIE vendor is being sought.

Middle Tennessee eHealth Connect	**Website:** http://www.middletnehealth.org

Project Summary and Objectives

In June 2007, the CEOs of the four health systems in the Nashville area (Nashville General Hospital, Vanderbilt University Medical Center, St. Thomas Health Services and TriStar Health) began meeting to discuss a Regional Health Information Organization in the Nashville area. On December 21, 2007 the four executives operating on behalf of their respective organizations signed an MOU to work together on forming an HIE. Vanderbilt's Regional Informatics team was asked to facilitate and lead the effort in its start up phase. In May 2008, the workgroups collectively delivered a recommendation to the leadership that noted there were many things that should be adapted and adopted from Memphis; however, Middle Tennessee should have its own governance model that would focus on the Nashville market. In this meeting, a projected budget was presented and it was determined that the $1.5 million from the state would not cover the entire cost of start-up (estimated to be $2.0 - $2.5 million over 18 – 24 months). In 2009, the Middle Tennessee eHealth Connect was incorporated as a non-profit organization in the state of Tennessee. Board Members continued meeting to discuss the cost of care to the area hospitals and how the MTeHC might impact not only the costs but how it could be the basis for coordination of care. The *mission* of the Middle Tennessee eHealth Connect is to improve the *effectiveness* and *efficiency* of healthcare delivered to every member of the community without regard to payer by connecting healthcare providers throughout Middle Tennessee. A Request for Proposal was distributed to multiple vendors in late July and a selection process was planned for fall of 2009. At the request of the newly formed HIP TN Board, Middle Tennessee vendor selection activities were placed on hold in September of 2009. Participants on HIP TN Workgroups explored models of statewide HIE but determined that no immediate decisions would arise from the options explored. In December, the MTeHC Board re-started their planning effort. Today, in 2010, leaders from HCA/TriStar, Vanderbilt, Ascension/STHS and the Nashville Hospital Authority remain committed to the process started three years ago. Even though the individuals representing the Nashville hospitals in the Middle TN group have changed, the level of commitment from this group has not waned. We continue to commit financially to support the needs of the HIE during its start-up phase. We continue the work required of each organization's staff to build the exchange. And, finally, we continue to analyze and to seek the best plan to achieve the MTeHC's vision.

Key Points on Middle Tennessee eHealth Connect Today:

- Regional Informatics continues to work with the Board and workgroups to support the building of the Middle Tennessee infrastructure.
- Bylaws have been written and approved. The founding Board members are representatives from VUH, Tri-Star, STHS, and NGH. Additional board members have also been named. There are still vacant seats on the board to broaden the group to include additional stakeholders (e.g., other providers, purchasers, community, etc.)
- MTeHC website will be launched in May 2010.

Key Stakeholders

Executive board members include:

- VUMC – Larry M. Goldberg, Executive Director and CEO of Vanderbilt Hospital

Middle Tennessee eHealth Connect	**Website:** http://www.middletnehealth.org

- HCA TriStar Health System – Larry Kloess, CEO
- Nashville General Hospital – Jason Boyd, Interim CEO
- STHS – Wes Littrell, Interim CEO
- THA – Craig Becker, CEO
- Safety Net – Dr. Clifton Meador, Executive Director, Vanderbilt-Meharry Alliance
- Physicians – Kasey Dread – Executive Director of Nashville Academy of Medicine
- State – Will Rice (ex-officio member), Director of eHealth
- City – Greg Hinote, (ex-officio) Deputy Mayor, Metropolitan Government of Nashville and Davidson County

Key contact(s) include:

Janet King, Project Manager of Regional Informatics, Vanderbilt Center for Better Health, and

Larry Kloess, CEO of TriStar Health System

Technical Architecture, Approach and Current Status

Middle Tennessee intends to bring an HIE 'live' within 9 months of contract signing with the vendor.

Privacy and Security Framework

Privacy and security principles are being revised to reflect the state's vision of privacy and security as well as incorporating requirements from ARRA. Data sharing agreements and policies are the next step for this group.

Financing Model

Write the business plan for the Middle Tennessee eHealth Connect to "bake" sustainability into the organization in the first year. Utilizing data from the MidSouth eHealth Alliance project evaluation, MTeHC will work to identify the next level of information sharing that will support coordination of care across care delivery settings.

Middle Tennessee eHealth Connect	**Website:** http://www.middletnehealth.org	
Use Cases Patient Centered Medical Home Emergency department	**Data Types** • Patient demographics • Encounter information • PCP • Labs • Radiology reports/results • EKG • ICD-9 codes • Dictated reports • Electronic documentation notes related to patient care • Medications • Allergies • Problem lists (ambulatory) • Procedure lists (ambulatory)	**Vendors** TBD

Middle Tennessee Rural Health Information Network (MTRHIN)	Not Available

Project Summary and Objectives

In 2007, Tennessee was awarded a $1.6 million HRSA grant to pilot Tennessee's first rural eHealth initiative. MTRHIN will connect 3 Critical Access Hospitals in the upper Cumberland region of Middle Tennessee with their tertiary referral hospital.

- Trousdale Medical Center (a United Neighborhood Health Services facility)
- Macon County General Hospital
- Riverview Regional Medical Center South
- Sumner Regional Medical Center.

The Tennessee Department of Health will work with the Tennessee Hospital Association (THA) and the Community Health Network (CHN) to develop and manage MTRHIN. CHN is a not-for-profit corporation that provides telehealth technology to healthcare providers in rural Tennessee communities. Ultimately, the hospitals in MTRHIN will also connect to the regional healthcare clinics in CHN's Telehealth Network, allowing for broader collaboration among healthcare providers in upper Middle Tennessee. These facilities are expected to have an operational HIE before the end of 2008.

Key Stakeholders

4 hospitals noted above. Key contact(s): Keith Williams, CEO of the Community Health Network.

Technical Architecture, Approach and Current Status

In conjunction with this project, the State of Tennessee has contracted with the CHN to purchase, install and host a HIE solution for sending and receiving electronic health data between the target systems below:

- Meditech – used by Sumner Regional, Trousdale and Riverview hospitals
- CPSI Healthcare Information and Patient Care System – used by Macon County General Hospital
- QS Technologies Patient Tracking Billing System – used by the Tennessee Department of Health
- NextGen Ambulatory System – used by CHN (Community Health Network) member clinics

In addition, CHN will be working with the State of Tennessee for providing high speed broadband access to the participating healthcare providers that will include utilization of funds from a FCC Telehealth grant.

Privacy and Security Framework
Unknown

Financing Model
$1.6 million HRSA grant

Use Cases	Data Types	Vendors
Continuity of Care	Unknown	EHRs (Meditech, NextGen)

MidSouth eHealth Alliance	**Website:** http://www.midsoutheha.org/

Project Summary and Objectives

In 2004, the MidSouth eHealth Alliance (Alliance), a Memphis-area RHIO, was created with a multiyear grant of $4.8 million federal from the AHRQ, $7.2 million in state funding, and in-kind contributions from Vanderbilt University. The Alliance is focused on: improving patient care, decreasing use of emergency departments for primary care, reducing hospital stays, reducing redundant tests, and controlling costs. Actively exchanging clinical data since May 2006, the Alliance serves member facilities in three counties surrounding Memphis. Originating in Memphis emergency rooms, the system has now expanded for use in safety net clinics and among hospitalists. The Alliance is currently extending access to area physicians.

Key Stakeholders

Executive board members include:

- Steve Burkett, CEO of UT Medical Group (Board Chair)
- Donna Abney, Executive Vice President of Methodist Healthcare;
- David Archer, President and Chief Executive Officer of Saint Francis Hospital
- Bob Gordon, Executive VP and Chief Administrative Officer of Baptist Memorial Health Care

Other Board members are:

- Burt Waller, CEO at Christ Community Health Services
- Yvonne Madlock, Director of Memphis and Shelby County Health Department
- Dr. Bob Riikola, Pediatrician at Memphis Children's Clinic
- Dr. Jerry Shenep, Chief Medical Information Officer at St. Jude Children's Research Hospital
- Robert Frank, Privacy Officer at The Regional Medical Center
- Melissa Hargiss, Director of eHealth for Tennessee

Key contact(s): Rodney Holmes, Executive Director

Technical Architecture, Approach and Current Status

The Alliance brings clinical patient encounter data from 15 area hospitals, 16 clinics, and one university medical group, to bear at the point of care. This initiative began with access to the clinical data by hospital emergency providers and has since expanded to include access to safety net clinics and hospitalists. Alliance clinical information includes admissions and discharge information, laboratory results, radiology results, transcriptions, and other clinical and demographic encounter information. Data exchange began in May 2006, and as of March 2009, all of the emergency departments continue to access the system including those in Fayette and Tipton counties and one in Southaven, MS. Also, 15 ambulatory clinics have access to the system. The number of active users was 18 hospitalists, 131 nurses, and 222 physicians. As of April, 2009, the system contained 4,704,000 encounter records, representing 1.28 million patients. Approximately 30,000 records are added daily.

MidSouth eHealth Alliance	Website: http://www.midsoutheha.org/

Privacy and Security Framework

A Board Committee reviews and recommends policy to the Alliance including the privacy and security framework. In the Alliance a patient is assumed to be in the system until the patient "opts out." Patients are notified their data will be shared through the MidSouth eHealth Alliance with other providers. Providers implement the notification and opt out processes as best fits their workflow. Patients opt out at the organizational level. Most organizations have a "real time" flag that is sent to the Alliance. Once the flag is set, the data from that facility for that patient is no longer viewable. Several organizations do not have the capability of sending a flag. Those organizations have worked through a secure communication processes with the Alliance to have the flag manually set as soon as possible. The Alliance doesn't receive psycho therapy notes from behavioral health or substance abuse facilities/units. However if a patient is at an emergency room and NOT admitted to a behavioral or substance abuse facility/unit the diagnosis codes are viewable.

Financing Model

Mainly funded by grants: $7.2M over 5 years from state and $5.0M from AHRQ over 5 years. Current operating costs are approximately $3.0 million per year. The Alliance is evaluating a per person served model (i.e. if you have 1M population it would cost $3 per person to sustain the HIO).

Use Cases	Data Types	Vendors
Transitions in care/medical home Medication Management	• Patient ID/demographics • Lab results • ICD-9 discharge codes • Encounter data • Med Hx through claims • Allergies (test) • Transcribed Reports (includes Imaging and Discharge Summaries	Initial build by Vanderbilt; it is now running "stand alone" on a secure platform through Informatics Corporation of America (ICA). The Alliance is not tied to this platform upon expiration of the AHRQ contract.

West Tennessee Healthcare	**Website:** http://www.wth.org/

Project Summary and Objectives

West Tennessee Healthcare, a five community hospital system in Jackson, has developed an operational exchange among participants in the region. The project began with the development of West Tennessee Healthcare's information system strategic plan in 1996, which focused on the provision of clinical information.

Key Stakeholders

Jackson-Madison County General Hospital, Bolivar General Hospital, Camden General Hospital, Gibson General Hospital, Humboldt General Hospital, and Milan General Hospital.

Key contact(s): Jeff Frieling, CIO of West Tennessee Healthcare

Technical Architecture, Approach and Current Status

In 2001, West Tennessee Healthcare began transmitting discharge records and PACs. In 2004, a MPI was added, and by 2008, West Tennessee Healthcare was transmitting laboratory values to area clinics.

Privacy and Security Framework

Conforms to federal and state laws. Data sharing agreements between hospitals and clinics. Audit trails are in place, and physicians know they are responsible for what happens under their access process.

Financing Model

West Tennessee Healthcare has paid for its implementation. In the fall 2008, West Tennessee Healthcare received a one year $350,000 grant from the state to:

- integrate HIE with NetTN
- ePrescribe
- build a physician portal to get information to community physicians
- integrate Jackson clinic with HIE

Use Cases	Data Types	Vendors
Clinical results delivery	• Patient ID/demographics • Lab results • ICD-9 discharge codes	Cerner Misys/Allscripts